PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off.
Vol. 110, No. 19 Thursday, May 9, 1940 Price Ten Cents

Wood Pulp Situation Becomes Acute

Suspension of Shipments of Wood Pulp From Scandinavian Countries Makes World Pulp Situation More Critical—Pulp Stocks Large in This Country But Serious Shortage Looms in Great Britain

The importance of the Scandinavian wood pulp supply in providing for the steadily expanding production of many kinds of paper, is now being realized in many parts of the world as imports of wood pulp from Sweden, Finland and Norway are now suspended. Wood pulp stocks in this country are sufficiently large to allay any anxiety for the present. The comment of Thomas B. McCabe, president of the Scott Paper Company, who recently said that he is not seriously concerned about the company's pulp supply for the year 1940, but that subsequent years presented many problems if the European conflict continues, apparently sums up the pulp situation as it relates to many of the larger domestic mills.

The diminishing imports of wood pulp from Scandinavian countries are shown in the latest government figures as follows:

March Pulp Imports Show Decrease

Imports of wood pulp into the United States in March reflected unsettled European conditions, according to data released May 8 by the Forest Products Division, Department of Commerce.

Wood pulp imports in March totaled 73,915 tons, valued at $3,501,874. Imports of wood pulp in March were 45.3 per cent below corresponding entries in March, 1939, and 21.8 per cent below the corresponding period in 1938.

There were no wood pulp imports from Finland in March, compared with 27,984 tons in the corresponding month of last year. March imports from Norway, totaling 484 tons were 93.9 per cent lower than in March, 1939, while imports from Sweden, totaling 17,422 tons were 61.2 per cent lower than in the corresponding month of last year.

Wood pulp imports from Canada in March were the only source from which an increase was registered as compared with last year. Imports from Canada, totaling 55,288 tons were 21.6 per cent higher than in March, 1939.

Shortage Critical in England

The shortage of Scandinavian wood pulp is becoming more acutely felt in England, however, for the northern countries and Poland shipped nearly 2,000,000 tons of pulp to Britain for the full year up to the start of the invasion of Finland by Russia. In the first eight months of 1939 Finland exported 460,000 tons of pulp to Britain and Norway 252,000 tons, while Canada normally exports about 50,000 tons of pulp to Britain.

London comment on the position of Canada states that, "It is estimated that the United States is producing less than its normal requirements of newsprint and that all but 10 per cent of its total imports are coming from Canada. It is therefore apparent that any considerable switch from Canada to Britain would upset the established trade between Canada and the United States, since it would be just as difficult for the United States to get supplies from the Baltic, Poland or Russia as it would be for Britain or France.

"Rayon manufacturers are stated to be in just as big a jam as the paper mills, though more dependent on the chemical groups of pulp.

"In the search for substitutes for wood pulp the British have found a use for a species of rush reed known as arundo-donax. It grows in low-lying parts of Devon, Norfolk and Suffolk and it is hoped that it can supplant part of the 310,000 tons of esparto grass normally imported from South America, thus saving shipping space.

"It is understood that there has been some success in Canada with the fabrication of cereal straws, such as flax, into a sort of synthetic wood pulp, though this is not thought likely to be a satisfactory alternative to the 50,000 tons of genuine wood pulp that Britain obtained from Canada in years such as 1938."

British Concern Wants Kraft Paper

The following letter has been received from Frank Huckle of John Dickinson & Co., Inc., King's Langley, Herts, England. Any company interested should get in touch with Mr. Huckle direct.

"As you can well imagine, the development that has taken place in the Scandinavian situation may very definitely cause some dislocation in our supplies

(Continued on page 44)

Pulp and Paper Important Aid in Exchange

F. G. Robinson, President Canadian Pulp & Paper Association, Declares Canada's Pulp and Paper Industry Important Contributor In Providing Foreign Exchange — Forestry Association Starts Drive For Members.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., May 6, 1940—F. G. Robinson, president of the Canadian Pulp and Paper Association, declared at Quebec a few days ago that Canada's pulp and paper industry is one of the greatest contributors to the nation's fighting strength, for the reason that through its large volume of exports it provides foreign exchange which greatly helps in Canada's ability to buy abroad. He was speaking at a luncheon of the Quebec Pulp and Paper Safety Association.

Pulp and Paper Contributed $155,000,000

As an indication of what the industry is doing in this respect, he said that in 1939 it contributed no less than $155,000,000 to Canada's favorable trade balance, "and it will do much more in 1940," he added. Since 1913, he continued, the exports of the industry had jumped from 3% to 17% of the country's total exports, and the payroll had gone up to $43,000,000 in 1939.

To many the term "paper industry" connotes the manufacture of newsprint, but this was an error, for while the production of newsprint had increased with great rapidity, other branches of the industry,—some established in Canada for over a century,—has gone steadily on,—and at a pace more accelerated than newsprint during the last few years. These other manufactures comprise book and writing papers, wrappings, tissues, and boards,—the last mentioned having recently become a lusty contributor to Canada's exports.

The manufacture of chemical pulp,—which is the basis of boards and all papers other than newsprint,—has also expanded, not only to keep pace with demands of the Canadian paper industry, but advantage has been taken of opportunities in export markets,—particularly for pulp used in the manufacture of rayon, Cellophane, and other allied chemical products derived from wood cellulose.

"To sum it up, while Canada's newsprint production in 1939 totalled about 3,000,000 tons, other papers and board products, together with pulp exported from this country, accounted for as much as 1,400,000 tons.

Work of Canadian Association Discussed

The practical work of the Canadian Pulp and Paper Association was gone into by Mr. Robinson, and he cited the current study towards which a substantial appropriation had been made, namely, "Manual and Mechanical Cutting—Methods and Equipment." This research, he said, looms as particularly important when one bears in mind that axe accidents alone represent a loss of $1,000,000 every year and if more practical methods can be found, this toll may be reduced while efficiency and productive capacity is increased. He also recalled the association's provision in 1929 of the $530,000 building for the Pulp and Paper Research Institute which has done much in the development of cellulose chemistry and related scientific studies.

"War conditions have placed upon the Canadian industry grave responsibilities," he said in conclusion. "There can be no doubt that, with the better organization that the industry has effected, and with understanding co-operation of the Dominion and provincial governments, the industry will meet the present situation with credit to Canada, and greatly increase her share in supplying the world's consumption of pulp, paper and derived products. Grave responsibilities are always great opportunities."

Forestry Association Plans Drive

A. A. Schmon, president of the Canadian Forestry Association, has announced that the Association will undertake a drive for membership and wartime funds in various centres in Quebec during the present month and that the chairmanship of the campaign is to be under John Bassett, president of the Montreal Gazette.

"The Canadian Forestry Association is making a vital contribution to Canada's war effort," Mr. Schmon stated. "The importance of the association's work must be more evident now than ever before as we see the forests of Norway, Sweden and Finland becoming no longer accessible to war industries of the British Empire. Forests are in the news every day because of this blow to a great European storehouse of forest wealth and more and more the industries requiring forest products will have to depend on Canada's woodlands."

France Ships Less Cigarette Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 1, 1940—Approximately 60,000 pounds less of French cigarette paper were shipped in the last quarter of 1939 as compared with the same period of 1938 from the consular district of Nantes, according to a report from the American Consulate General, Nantes. There was, however, a 45,000 pound increase in the total year of 1939 as compared with 1938. It is reported that one mill in the district has been operating at 85 percent of capacity but expects to resume full production shortly. Raw material prices have increased but they are still fluctuating. The cigarette paper industry has been classified by the government as of "national interest," which has facilitated its operation during the past several months.

A labor shortage at one mill may result in the inability to fill American orders for 25,000 rolls of cigarette paper monthly. As the shortage of raw materials is particularly felt in the paper industry, it is reported in the press that an attempt will be made to utilize domestic woods or woods from French colonies as far as possible. It is believed, however, that imports from abroad necessarily must be depended upon.

Riverside to Expand Finishing Department

Work To Start Soon On Four Story Addition To Finishing Department of Riverside Paper Corporation Plant — Appleton Wire Works Adds New Loom—U. S. Forest Service To Increase Lands—Industrial News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., May 6, 1940—Construction will be started by the Riverside Paper Corporation here between June 1 and 15 on a four story addition to its finishing department. It will be located at the east end of the mill building, will be 78 by 86 feet in size, and will be of steel and concrete. The project will cost about $25,000, according to E. C. Hilfert, general manager. The contract has been awarded to C. R. Meyer & Sons Company, Oshkosh, Wis., and the work is to be completed about July 15. The added space will be used mostly for storage.

School Stationers Corp. Expands

Work is under way on a $5,000 factory addition for the School Stationers Corporation, Menasha, Wis. It will be of brick, one-story, size 75 by 100 feet, extending directly south from the present factory. The contract has been awarded to Charles Gambsky Construction Company, Menasha. The new floor space will be used for manufacturing and storage purposes.

Appleton Wire Works Add New Loom

An increasing volume has made it necessary for the Appleton Wire Works, Appleton, Wis., to construct its 75th loom, which will be placed in operation soon. The company operated last year for twice the man hours of the year 1929, and now has 170 employees working on two shifts. This gain in business is in spite of a decline in the consumption of wires. The combination of improved wires and improved paper machines has given longer life to wires, causing less demand. Improved processes of welding and new products have brought more business. Wires are now made ranging in width from 52 to 251 inches. A. J. Taylor, a weaver who was the first employee when the company began business in 1896 is still with the company.

Banta Buys Land at Menasha

The land occupied by the former Island Paper Company at Menasha, Wis., has been purchased by the George Banta Publishing Company. It will be used for future expansion of the plant, although there are no immediate prospects. Since no water power will be utilized, the flume has been filled up and the property has been converted into a parking yard for employees. The last owner of the property was the Meade Paper Company, Chillicothe, Ohio, which razed the mill with the last year.

New Kimberly-Clark Unit Under Way

Excavation and installation of footings for the basement of the new Kimberly-Clark Corporation plant at Neenah, Wis., are about completed by the Siesel Construction Company, Milwaukee, Wis. Steel for the superstructure has arrived and will be put in place soon. The building will be 76 by 240 feet in size, with full basement and two stories. It is part of a million dollar expansion program, and will house machines for coarse wadding, intended for a new insulation product.

Paper Institute Starts Tree Plantation

An experimental tree plantation has been started by the Institute of Paper Chemistry, Appleton, Wis., on property adjoining the buildings. Four hundred 3-year-old trees have been set out representing eight pulp wood species: White and Norway spruce, balsam fir, European larch, and Jack, red and white and Scotch pines. The trees will be used principally in the identification phase of the wood technology course. Other species probably will be added later.

U. S. Forest Service to Increase Lands

The United States Forest Service, Washington, D. C., has authorized the purchase of additional lands for its national forests in the lake states. Among its acquisitions are 769 acres for the Chequamegon National Forest, Wisconsin, cost $2,482; 502 acres, Minnesota Superior Forest, $1,170; in Michigan, 3,399 acres for Manistee Forest, $8,846; 40 acres for Huron Forest, $200; 2,063 acres, Ottawa Forest, $26,338, and 40 acres, Hiawatha Forest, $1,653.

Training in forestry is to be given qualified young men under the federal NYA program, in cooperation with the U. S. Forest Service. The school will be conducted at Rhinelander, Wis., jointly with courses in the vocational school, including landscaping, fire prevention and suppression, nursery practice, disease control, botany and soil study. The government maintains extensive forest nurseries at Rhinelander.

P. R. Eastwood Transferred

Paul R. Eastwood of Appleton, Wis., who has been a chemist at the Kimberly-Clark Corporation mill at Kimberly, Wis., for the last ten years has been transferred to the company's mill at Niagara Falls, N. Y. Fifty of his co-workers tendered him a stag party last week as a farewell event. He left last Friday to take over his new duties.

To Build Board Mill in Brazil

WASHINGTON, D. C., May 1, 1940—It is reported that a large manufacturing concern in New Zealand has announced that their company plans to erect a factory for the production of insulating board and hard pressed board, according to a report from the American Consulate General, Wellington. A license to manufacture already has been obtained. It is reported that an initial outlay of approximately $1,120,000 will be made. After considering the various methods used in major countries of the world, it is reported that it was decided to adopt the technic used in the United States. No indication is given of the approximate time of commencement of operation or the construction of the plant.

Kraft Paper Demand Adds Strength to Market

Chicago Trade Reports Increasing Demand For Kraft Paper Gives Strong Tone To Midwest Market — Waste Papers Little Changed — Agencies Warned On State Tax Liability—Paper Salesmen Meet — Other News.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., May 6, 1940—The Chicago paper market continued to experience little change during the past week, even though reports of scarcity in raw materials were current on every side. The kraft market gave the most accurate picture of what was going on as it developed increasing strength on all sides. Sulphites continued to lag behind according to local reports although the market was slowly stiffening to a point where upward revision seems almost a certainty. Bonds and ledgers reported no actual changes in the market structure though forces were combining to give a strong tone to the market.

Groundwoods papers were also firm and newsprint offices here indicated that scarcity of pulp was forcing these grades into higher ground. Waste papers were reported as only mildly affected by the war situation with most grades little changed following the first of the month revisions.

Workers and Payrolls Off in February

Decline in the paper and printing industry during February and March in the seventh federal reserve district is indicated in the current report covering business in Wisconsin, Michigan, Illinois, Indana and Iowa. The 709 reporting firms reported 75,914 wage earners with a total earnings of $2,171,000 during the week of March 15. This represents a 1.8 per cent decrease in wage earners and a 1.3 per cent decline in earnings as compared to February 15. The total manufacturing, 10 groups, showed a 0.2 per cent increase in wage earners and 0.1 per cent increase in earnings over the same period.

Fine Paper Salesmen Meet

The second meeting of the Chicago Association of Fine Paper Salesmen was held April 18 at 723 S. Wells street. L. Pusey of the Swigart Paper Company was elected president; Mr. Muller of Messinger Paper Company, vice president and C. H. Roeser of Berkshire Papers, Inc., was elected secretary-treasurer. At this meeting the salesmen also decided to have an advisory committee of two delegates from each paper house to carry on the permanent program of the Association.

Paper Men Attend Safety Conference

The proceedings of the Midwest Safety Conference, meeting for the 18th time in Chicago during the past week, attracted the interest of a considerable number of paper mill executives who inspected the nearly 100 exhibits of safety and accident prevention equipment and who attended a well rounded three day program covering the subjects of industrial safety, public safety, first aid in industry, fire prevention, home safety and industrial hygiene.

Salesmen Plan Golf Outing

The midwest division of the Salesmens Association will hold its first golf outing of the year on Friday, May 24, at the Sunset Ridge Country Club. According to "Pat" Patterson, golf chairman, and Ed Rolaine, assistant chairman, a record breaking crowd is in prospect.

Warn Agencies on Tax Liability

Typical of what may happen to sales agents representing outside the state companies from Chicago offices and in relation to the three per cent Retailers Occupation Tax, is the letter recently written by a Department of Finance executive to an agent of a "foreign" company located in Illinois. "It has come to the attention of the Department that you are allegedly making quotations to potential purchasers of your product implying that such products may be imported into this State without the incurrence of Retailers Occupation Tax liability. It is admitted that you have every discretion in the matter of determining your prices but in view of a recent revision of Article 5 of Rules and Regulations of the Department, it is not altogether proper to represent that sales made under the circumstances hereinbefore referred to would not give rise to liability under the Act."

Plan New Paper Box Plant

A new paper box making plant with an initial payroll of 500 employees has been announced for the city of Chicago. John O. Gilbert and a group of New Yorkers are having plans drawn by David Saul Flafter, Inc., for a plant for the manufacture of cardboard and paper boxes. It will be built on Chicago's near northwest side with connections to the Milwaukee Railroad. Work will begin about May 15 on the one story building which will have 40,000 square feet on the main floor and about 15,000 square feet of basement. Part of the first floor, occupied by the administration offices, will be air conditioned. Additional space to be occupied by the company's printing plant will also be air conditioned. The total cost, including land, plant and equipment, is given at $260,000. Construction will be completed in the early fall with installation of machinery expected to be finished by the first of next year. At that time it is reported that operations will begin on a 24 hour daily schedule. The name of the concern has not as yet been determined.

Robbins Paper Co. Changes

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., May 6, 1940—Lewis C. Bills, formerly with the Kendall Paper Company, is now with the Robbins Paper Company, 263 Summer street, Boston, in the capacity of vice-president. G. T. Singleton, formerly president of the Robbins Paper Company, is president and treasurer. A. W. Lilley continues as secretary. The changes have been made due to the death of Herbert W. Robbins, former treasurer.

Discusses Revision of Cutting Rules

On April 4 at the DeSoto Hotel, Savannah, Ga., the executive committee of the Southern Pulpwood Conservation Association held an informal meeting with public forestry officials. The purpose of this meeting was to discuss the cutting rules which are now being practiced by members of the Association with particular reference to the possibility of effecting desired changes in the rules.

Present at the Meeting

The executive committee of the Southern Pulpwood Conservation Association, all members of which were present at the meeting, is as follows: J. H. Allen, C. O. Brown, C. E. Smith, A. H. Stier, E. A. Sterling.

Meeting with the executive committee were the following representatives of the public foresters:

U. S. Forest Service—G. D. Cook, Chief, Office of Private Forestry, Washington; C. F. Evans, Asst. Regional Forester in charge of Private Forestry, Atlanta; C. G. Smith, Asst. to Mr. Evans, detailed to pulpwood production; I. F. Eldredge, Regional Director Forest Survey, New Orleans, La.

Committee of State Foresters:—H. A. Smith, State Forester of South Carolina; L. E. Staley, Asst. State Forester of Florida.

Cutting Rules Adopted in 1937

The cutting rules which are now in effect were adopted December 1937 although the Southern Pulpwood Conservation Association was not formally organized until February 1939. At the time the rules were adopted it was recognized that they represented minimum forest practices and that they would be subject to revision at a later date. The original rules were of necessity simple because of the fact that their adoption comprised an abrupt step involving great changes in wood procurement. Never before in the South had a wood using industry made an attempt to subject itself to self regulation.

Success Is Evident

That this self imposed regulation, as represented by the cutting rules of the Southern Pulpwood Conservation Association, has been successful is clearly recognized by those who have followed the development of the association. This success is further attested by the fact that the pulpwood industry has seen fit to invite the public forestry officials to discuss with it desired changes in the cutting rules so as to provide for forest practices on a still higher plane than those provided for by the original rules. The specific purpose of the April 4 meeting was to revise the cutting rules upward.

Assures Public Foresters

At this meeting President Allen of the Southern Pulpwood Conservation Association assured the public foresters that any rules which the association adopted were to be regarded not as a maximum but as a minimum. They were, in effect, to define a standard of forestry below which pulpwood procurement activities would not fall, and above which forestry practices tending toward selective cutting and sustained yield would be conducted.

Present plans of the association call for a general meeting of the association some time during June at which the present cutting rules will be revised along the lines recommended by the executive committee.

Government Paper Bids

WASHINGTON, D. C., May 8, 1940—Government Printing Office has received the following bids for 9,750 pounds (300,000 sheets) of 21 x 32 green sulphite manifold paper: Whitaker Paper Company, 8.29 cents; Import Paper Company, 7.95 cents less 2 per cent; R. P. Andrews Paper Company, 8.375 cents; Barton, Duer & Koch Paper Company, 8.25 cents; Old Dominion Paper Company, 9.38 cents; Paper Corp. of U. S., 8.4 cents; and Mathers-Lamm Paper Company, 8.75 cents.

For 10,000 pounds (35,000 sheets) of 17 x 28 manila cardboard; Paper Corporation of U. S., 4.51 cents.

For 10,000 pounds of 75 per cent rag, white antique laid book paper: R. P. Andrews Paper Company, 10.77 cents; Mudge Paper Company, 17.8 cents; Stanford Paper Company, 18.75 cents; Mathers-Lamm Paper Company, 17.75 cents; Paper Corporation of U. S., 10.81 cents; Barton, Duer & Koch Paper Company, 14.8 cents; and Whitaker Paper Company, 12.36 cents.

For 7,500 pounds of 26 x 38, No. 100 newsboard: Barton, Duer & Koch Paper Company, 1.9875 cents; R. P. Andrews Paper Company, 2 cents; L. Hyman & Sons, 1.545 cents; Stanford Paper Company, 2.1 cents; Mudge Paper Company, 1.98 cents; Virginia Paper Company, 2 cents; Enterprise Paper Company, 1.96 cents less 1 per cent and Mathers-Lamm Paper Company, 2 cents.

Plan for Cincinnati Meeting

The plans for the annual convention of the American Pulp and Paper Mill Superintendents Association to be held at Cincinnati, Ohio, June 18-20, are said to be progressing very satisfactorily.

President Harrison, Secretary Eminger, and Convention Manager G. W. Craigie were in conference recently at Middletown for laying plans for convention activities and entertainment. There are in prospective several informative papers of general interest and group chairmen are working hard on their individual programs.

Instead of the usual tissue group meetings, men interested in tissue will be taken to Middletown where they may go through the Crystal Tissue Company after which a round table conference will take place in the mill office. This promises to be an unusual, interesting and profitable meeting.

Entertainment promises to be of a high order. Wednesday evening will be given to a dinner and special entertainment for which several outstanding acts are being provided. One of the convention highlights will be a trip through the Procter & Gamble factory, the largest soap factory in the world.

Attendants at the 1940 convention will find plenty of profitable meetings. Fifty-four booths have been sold in the exhibit hall to outstanding exhibitors and mill men may see there the latest developments in machinery, equipment and supplies.

Obituary

Chester W. Alden

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Me., April 29, 1940—Chester W. Alden, 53, traffic manager of the Oxford Paper Company and general manager of its wood department, died suddenly April 20 at his home here a few hours after having suffered a heart attack. He had been associated with the Oxford Paper Company since 1923.

He was born at Fitchburg, Mass., and became president and treasurer of a construction firm, when but 22 years of age. He had been associated with the Russell Companies of Boston, pulp mill operators, and had operated timberlands in the province of Quebec for the S. D. Warren Paper Company.

He was president of the Nashawk Pulp and Paper Company, Saint John, N. B., president of the Avon Coal Company, Minto, N. B., a director of the New England Pulp and Paper Traffic Association of Boston and first vice-president of the American Pulp and Paper Association. He lived at Saint John several years.

He was a former member of Kora Temple, Mystic Shrine, and St. Alban commandery, Knights Templar, here. He leaves his wife and five children.

Albert Maclaren

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, April 22, 1940—Albert Maclaren, head of the Maclaren power and paper interests in the Valley of the Lievre river, died suddenly at his home at Buckingham, Que., last night. He was 69 years of age. He had suffered from a heart condition for some time and passed away in his library shortly after a comparatively minor automobile accident following his attendance at the wedding of a grandnephew, Lieut. John Kenny, of the Black Watch Regiment, Montreal. who wed Miss Ida Cressy, of Masson, Que. The car in which Mr. Maclaren was riding swerved into a post, but he was unhurt. He declined assistance and continued the journey home on foot. He died a short time after reaching his home.

Surviving him are three daughters and two sons.

Born in Buckingham on July 16, 1870, Albert Maclaren attended Upper Canada College, Toronto, and at the age of 18, became private secretary to his father, the late James Maclaren, founder of the firm. Learning the business, he later transferred to the accounting department. In 1900 he succeeded to the presidency of the James Maclaren Company Limited at the age of 30.

At the time of his death, Mr. Maclaren was also president of the MacLaren Power and Paper Company, the Maclaren-Quebec Power Company, and the Union Realty Company, Ottawa. He was director of the Bank of Nova Scotia and the Toronto General Trusts.

Francis X. Grode

[FROM OUR REGULAR CORRESPONDENT]

WISCONSIN RAPIDS, Wis., April 29, 1940—Francis X. Grode, president and one of the founders of the Grode and Nash Paper Company, died suddenly at his home at Nekoosa, Wis., at noon Saturday, April 13. He was 64 years old.

Mr. Grode was born at Darboy, Wis., May 20, 1875, and for a time lived at Menasha, Wis., before moving to Nekoosa. In 1918 he became associated with John P. Nash at Wisconsin Rapids in the real estate business, and in 1919 they organized the Grode and Nash Paper Company, of which Mr. Grode was president until his death. Mr. Nash, the firm's secretary and treasurer, preceded him in death.

Mr. Grode was prominent in civic, fraternal and church affairs, and served for a time as president of the Nekoosa Chamber of Commerce. His mother, Mrs. Michael Grode of Oshkosh, Wis., and two children survive him. Mrs. Grode died in 1914.

Burial was made in Riverside cemetery at Nekoosa.

Bishop Stewart

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., May 6, 1940—The sales division of the paper industry lost a friend of long standing and one who always took a keen interest in the fortune of that industry with the sudden death of Bishop George Craig Stewart who, for many years, had served as chaplain of the Salesmen's Association of the Paper Industry. Bishop Stewart died from a heart attack on May 2 at the age of 60 years. He was well known to many paper sales executives, had frequently appeared on their programs, always giving an address which was the highlight of any program. One of the outstanding thinkers of the country, a gifted linguist and a most congenial companion, Bishop Stewart will leave a void in the future plans of the Salesmens Association of the Paper Industry and particularly the midwest division.

Warren R. Hendry

Warren R. Hendry, a salesman with Charles F. Hubbs & Company, paper merchants, 383 Lafayette street, New York, was buried from Irvington, N. J., on April 17.

Mr. Hendry was associated with Charles F. Hubbs & Company for forty-four years.

Plastikon Rubber Putty

A new catalog section on its line of Plastikon rubber putty, adaptable to many uses in building and industry has just been published by the B. F. Goodrich Company, Akron, Ohio. Copies will be sent upon request to the manufacturer.

The material is interesting to the paper field because of its many applications where moisture, or the use of alkalies or acids make the ordinary materials fail to withstand operating conditions.

Superiority of rubber putty over the ordinary types for many kinds of services lies in the fact that the product retains a degree of plasticity for long periods, does not harden, dry out or crack. It is waterproof and maintains a seal against water more effectively than other materials.

The putty produces and maintains the air-tight and water-tight seal essential in many cases. It has great resistance to deteriorating effects of corrosive chemicals, chemical fumes and salt spray, adheres strongly and permanently to wood, steel and glass despite the action of sunlight, vibration or presence of corrosive chemicals and fumes. Severe climatic conditions effect no changes or deterioration over long periods.

Furnished in red, black, grey, green or gun metal, it is applied with putty knife or caulking gun.

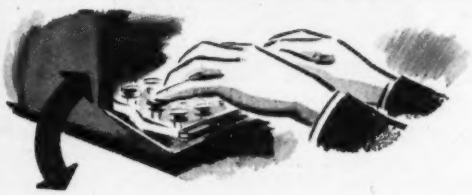
THE CASE OF THE MIXED-UP MEDICINE

(it actually happened)

1 Look, Mother! Here's the baby's medicine Fred and Grace were supposed to take with them. I'll bet they took the wrong bottle by mistake. . . . *I'm going to call the police!*

2 . . . they're in a green coupe headed for Boston. The license number is X3857. You *must* do something to stop them.

3 Send this message by teletype at once to all stations between here and Boston. Make it fast. A baby's life is in danger.



4 8-state alarm—stop dark green coupe, license X3857. Man named F—— B—— with wife and baby. They took wrong medicine bottle for baby. The one they have contains 1 per cent atrophine sulphate. Stop car and warn them. If supposed medicine has already been administered, use any emetic.

5 **ONE HOUR LATER.** That's the car we're after, Harry. Let's go!

6 We've just received the following message by teletype — Baby out of danger.

THE same factors that recommend Bell System Teletypewriter Service to the police *make it valuable to modern business also.* It flashes messages with speed and the accuracy of the written word. Saves time, error, and money. A Bell System representative will gladly tell you how. You can reach him readily through your local telephone office.

British Paper Mills Face Difficulties

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 1, 1940—Unless the port of Narvik, Norway, can be opened for rail shipments of Swedish pulp, British manufacturers of paper face serious difficulties, the Forest Products Division, Commerce Department, reported today.

This is particularly true in the case of newsprint manufacturing in Great Britain, since normally Finland, Sweden and Norway supply from 75 to 80 per cent of the United Kingdom's imports of paper-making material. These countries also supply the United Kingdom with 45 per cent of her manufactured paper imports.

In 1938, United Kingdom imports of paper making materials from the three Scandinavian countries were valued at about $57,000,000, and imports of paper products from the same sources were valued at $28,500,000. Trade sources report there has been no great change in the proportion of these imports from the Scandinavian countries recently.

The situation is particularly serious for British newsprint manufacturers since it may be difficult for them to secure total replacements from Canadian mills, the Forest Products Division reported.

A paper control order effective April 13 reduces the amount of paper and paperboard which United Kingdom paper mills may supply customers, except under licenses, during the three months ending June 1, 1940, to 30 per cent of the amount supplied during the same period in 1939. This is a reduction of 50 per cent of the amount allowed in a previous paper control order.

Testing Company Elects Officers

At the annual meeting of stockholders of the United States Testing Company, Inc., held in the officers of the Company on Wednesday, April 24, 1940, the following twelve members of the board of directors were reelected for another term, and five new directors were elected.

The members of the Board continued for an additional term are: J. P. T. Armstrong, D. E. Douty, Otto Froelicher, Joseph Gerli, James A. Goldsmith, Oscar Heineman, William H. Hubbard, Joseph Le Bauer, Walter H. Rossmassler, S. A. Salvage, E. J. Stehli and H. L. Van Praag.

The new members elected are: G. H. Gonze, B. C. Dunlop, Kiycshi Miyazaki, A. L. Brassell and Charles J. Huber.

At a director's meeting held the same day, Wednesday, April 24, the following officers were duly elected.

Chairman of the Board—E. J. Stehli, President and Chairman of Executive Committee—D. E. Douty, Vice President—A. L. Brassell, Charles J. Huber, Treasurer—E. C. Brown, Secretary—Ramsay Peugnet, Assistant Secretary and Assistant Treasurer—S. B. Walker.

Mr. Douty, president of the Testing Company, reviewed the growth of the company in recent years and submitted a yearly report for 1939 for approval. He pointed out the company's business for 1939 showed considerable gain over that of 1938 and further reported that for the first quarter of 1940 the indications were that we could expect a business during the first half of 1940 comparable with the last half of 1939 which had been very satisfactory.

New Stereoscopic Microscopes

A new series of stereoscopic microscopes embodying notable optical and mechanical improvements is being introduced by Spencer Lens Company of Buffalo, N. Y., Scientific Instrument Division of American Optical Company.

A vivid stereoscopic image that is easier on the eyes, a great depth of focus, an exceptionally large object field and a high degree of resolution of fine detail giving critical sharpness to the image are the outstanding optical characteristics of the new instruments.

Equally noteworthy are the mechanical improvements which facilitate focusing on large or small specimens, and provide for quick changes in magnification. These instruments are heavier and more rigid. The objective lenses are held in a dust-proof revolving objective holder. A base with mirror provides for work requiring transmitted light.

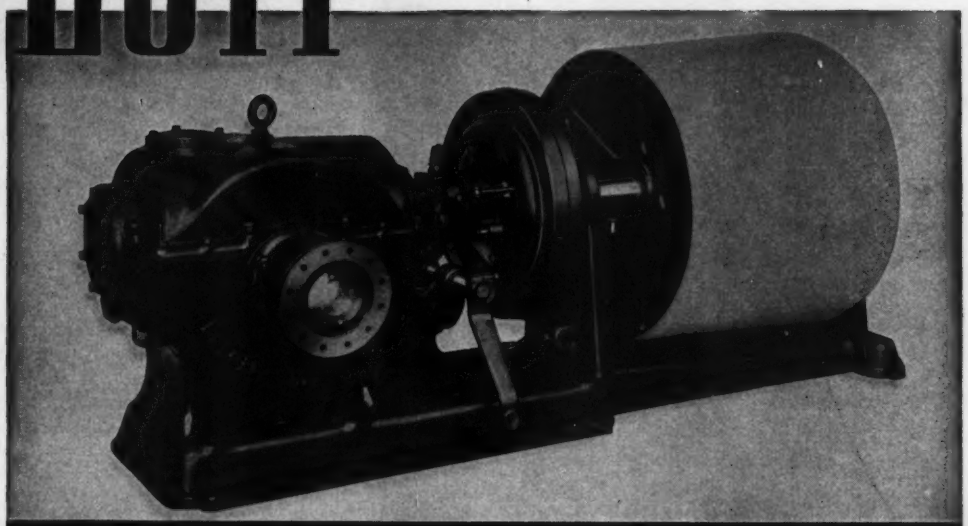
SPENCER STEREOSCOPIC MICROSCOPE.

The new instruments are offered in four different mechanical arrangements to cover a wide range of uses. Magnifications range from 6.3X to 144X. Seven different powers in paired objectives and four different powers in paired eyepieces provide a total of 28 different magnifications.

The angle between the axes of the two elements of the paired objectives is twelve degrees. In the prism boxes, each line of light is bent two degrees toward the center so that the convergence at the eyepieces is but eight degrees. This dual-convergence maintains the stereoscopic effect yet makes it possible to work comfortably for long periods without eyestrain—an exclusive Spencer feature.

Many thousands of instruments of the stereoscopic type have been sold during recent years. Industries have found them indispensable in the inspection of raw materials, work in process, and finished products. The advance demand far exceeds present production facilities; therefore orders are being accepted by the company for future delivery in the order in which they are received. A free catalog descriptive of these instruments will be supplied to anyone writing to Spencer Lens Company.

BELOIT



HEAVY DUTY *Hypoid Gear Drive*

● **Gears cut of special steel are totally enclosed and operate in bath of oil. Gear and pinion shafts are mounted on roller bearings which are automatically lubricated.**

Equipped with improved Beloit automotive type clutch having unusually large air-cooled friction plate area. Oil lubricated throw out collar

BELOIT IRON WORKS PAPER MACHY BELOIT WIS.

THE BELOIT WAY IS THE MODERN WAY

BELOIT IRON WORKS, Beloit, Wisconsin, U. S. A.

CONSTRUCTION NEWS

Richmond, Va.—The Manchester Board and Paper Company, Inc., manufacturer of chip board and other paper board products, has approved plans for new two-story addition to mill on Mayo's Island, to be used for storage and distribution. Cost estimated close to $30,000, with equipment. General erection contract has been let to Allen J. Saville, Inc., Electric Building, Richmond, and work will be placed under way at once.

Corning, N. Y.—The Corning Fibre Box Corporation, Hammel street, manufacturer of corrugated boxes and containers, has awarded general contract to Henry W. Streeter Corporation, 608 William street, Elmira, N. Y., for new one-story addition to plant, recently noted in these columns, and will proceed with superstructure at once. It is estimated to cost close to $50,000, with equipment, which will provide for considerable increased capacity. A. M. Tietzel, Market street, Corning, is engineer.

Chicago, Ill.—Container Corporation of America, Inc., 111 West Washington street, manufacturer of corrugated boxes and containers, has filed plans for one-story addition to steam power house at local mill at 900 North Ogden avenue, to be equipped for increased capacity. General erection contract has been let to the E. L. Lonergan Construction Company, 203 North Wabash avenue, and work will be placed under way at once. Cost reported over $40,000, with equipment. The H. M. Wilson, Company, Brandywine and 18th streets, is architect.

Kalamazoo, Mich.—The Kalamazoo Paper Company, Inc., manufacturer of writing and other paper stocks, is arranging an appropriation of about $250,000 for expansion and improvements in mill during the company year, to include installation of equipment for increased capacity. No date for beginning work has as yet been decided.

Jacksonville, Fla.—The National Container Corporation, Review avenue, Long Island City, New York, manufacturer of corrugated boxes and containers, has begun modernization and improvements in building on Talleyrand avenue, Jacksonville, formerly used as a cotton compress mill and recently secured under lease from the city, as previously noted in these columns. The main structure is one-story, 96 x 480 feet, with an adjoining smaller building, and will be used by the company for a converting plant for the production of a line of corrugated containers, operated in conjunction with local kraft board and paper mill. Separate contracts are being awarded for different features of the modernization work, reported to cost over $50,000. Equipment and facilities will be installed for large output. It is expected to have the plant ready for service in the fall.

New Haven, Conn.—The New Haven Pulp and Board Company, 259 East street, manufacturer of coated board stocks, chip board, news board, etc., has work under way on proposed addition to mill, recently noted in these columns, and will push work to early completion. The structure will be one-story, about 33 x 155 feet, and will be used for storage and distribution. The Dwight Building Company, 67 Church street, New Haven, has the contract for erection.

Fairville, St. John, N. B.—Wilson Boxes, Ltd., Fairville, manufacturer of corrugated boxes and containers, has completed plans for new addition to mill, to be one-story, reported to cost about $50,000, with equipment. Contract for erection has been let to H. B. Whitenect, 291 Price Edward street, St. John, and work will be placed in progress at once.

Joliette, Que.—The recent report in these columns that Fernhill & Company, Ltd., Valleyfield, Que., planned a mill at Joliette for tissue paper production, was incorrect. The company noted is engaged in another line of manufacture and will not construct such a plant.

Iroquois Falls, Ont.—The Abitibi Power and Paper Company, Ltd., Iroquois Falls, has plans under way for the construction of a new marine railway in the vicinity of Orient Bay, Lake Nipigon district, Ont. Cost is estimated over $40,000. Surveys are being made and it is said that bids for work will be asked soon. G. T. Clarkson is company engineer in charge.

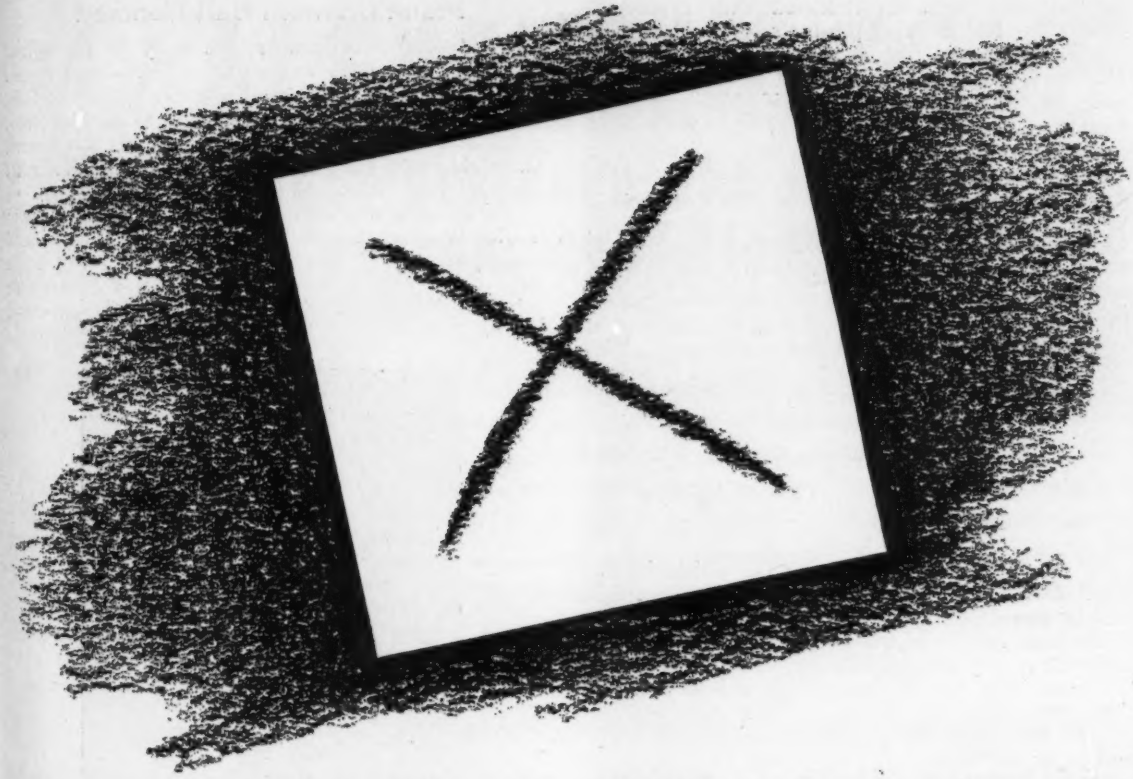
Toronto, Ont.—The Burgess Cellulose Company, Ltd., recently organized, has preliminary plans under way for new local mill for production of cellulose products. It will be one-story, reported to cost close to $50,000, including equipment. R. W. Hart, 350 Bay street, Toronto, barrister, is company representative.

Ottawa, Ont.—Modern Containers, Ltd., 334 Queen street, manufacturer of corrugated paper boxes and other containers, has preliminary plans under consideration for new plant on Bayview road, where site has been selected. It will be one-story, reported to cost about $50,000, with equipment.

Red Rock, Ont.—In a hearing before the Legislature Committee of the Province of Ontario, investigating the timber policy of the Government of Ontario, R. O. Sweezey, one of the organizers of the Lake Sulphite Pulp Company, Ltd., Red Rock, now in receivership, stated that present conditions in the pulp industry may bring about the completion in a few months of the mill of the company, on which construtcion was suspended a number of months ago. He said that it is estimated that the completion of the mill, with installation of machinery for the production of unbleached pulp, would cost approximately $3,500,000 while to equip the plant for the manufacture of bleached pulp would represent an additional expenditure of $1,000,000. It is stated further that the plant, with rated output of about 300 tons per day, could be completed in approximately five months. G. S. Currie, Montreal, Que., is receiver and manager for the company.

New Companies, Etc.

Los Angeles, Calif.—The Mathews Paper Cor-



DON'T SPOIL IT AT THE LAST MINUTE

After your paper is all made—has gone through all those careful and costly steps—why let some of it be turned into seconds or throw-outs by a dirty or improperly doctored roll?

There's no excuse for it now that there's a Vickery Doctor specially designed and engineered to keep *that* roll and every paper making roll in the mill continuously in perfect shape to do its job.

The right Vickery Doctor installation quickly pays for itself. Check over your rolls and ask us to send layouts and estimates.

BIRD MACHINE COMPANY, SOUTH WALPOLE, MASSACHUSETTS

VICKERY DOCTORS

poration has been incorporated with capital of $25,000, to deal in paper products of various kinds. The incorporators include Harold Jaye and F. D. Mathews, both of Los Angeles. Company is represented by Sidney J. Unickel, Pacific National Bank Building, Los Angeles, attorney.

Caldwell, N. J.—The Industrial Fibre Products Company has been organized with capital of $100,000, to manufacture fiber produtcs of various kinds. Company is represented by Maurice J. Zucker, 24 Branford place, Newark, N. J., attorney.

Los Angeles, Calif.—Artcote Papers, Inc., a New Jersey corporation, has filed notice to operate in California, with capital of $25,000, dealing in special and other paper products. James W. Virginl, 836 San Julian street, Los Angeles, is corporate representative for company in California.

A Correction

Clayton Ewing, president of the Falls Paper and Power Company, Oconto Falls, Wis., writes as follows:—

"I was very surprised to read an article in the April 25 issue of your paper to the effect that this mill is owned by Marathon Paper Mills Company, Rothschild, and Northern Paper Mills, Green Bay; and wish to very emphatically correct this impression.

"Financially we are completely independent of these two organizations, although it is true that we manufacture substantial quantities of sulphite pulp and paper for them.

"For your information our company took over the operation of this mill on November 1, 1939, succeeding the Falls Pulp and Paper Company, who went out of business. Since that time we have been operating at capacity a groundwood mill, a sulphite pulp mill and a paper mill. During the same period we have rebuilt both of our Fourdrinier paper machines which has resulted in substantially increased capacity in the paper mill. Within a very short period of time we will also have in operation an additional digester which will increase the capacity of the sulphite pulp mill approximately five thousand tons per year."

J. D. Patterson Goes with Union Bag

SAVANNAH, Ga., May 6, 1940—J. D. Patterson, traffic manager and assistant secretary of the Savannah Port Authority and traffic manager of the Savannah Traffic Bureau, has resigned these positions to become general traffic manager of the Union Bag and Paper Corporation.

As general traffic manager for the Union Bag, Mr. Patterson will make his headquarters in New York. He has had twenty-five years experience in shipping, traffic and transportation activities here. For five years he was connected with Strachan Shipping Company, for two years with A. H. Cary, foreign freight broker and forwarding agent, and for two years he was employed in industrial traffic management.

Mr. Patterson has been in the employ of the Port Authority and Traffic Bureau since 1924.

Stuart H. Brown, general traffic manager for thirty-five years of the Union Bag and Paper Company voluntarily resigned that position May 1.

Frank Griswold Hall Honored

The typical American success story of the office boy who worked his way to the top was told again when the officers and directors of Stein, Hall & Co., Inc., manufacturers and distributors of starches, gums and dextrines, tendered a banquet to Frank Griswold Hall, president, in celebration of the 50th anniversary of his association with the company.

The banquet was held in the Jansen Suite of New York's Waldorf-Astoria Hotel on April 6, just a half century from the day when Mr. Hall's reply to a newspaper "help wanted" ad won him a $9-a-week job with the late Leo Stein, who in 1889 had opened a New York office for Stein, Hirsh & Co., the original company, organized in Chicago in 1866. Stein-Hall will celebrate its 75th anniversary next year.

FRANK GRISWOLD HALL

Organized by Solomon Stein and Morris M. Hirsh, the original company was already 24 years old when Mr. Hall became office boy, stock clerk and salesman for Leo Stein. The steady growth of the New York business justified a division of the company into two partnerships, one in Chicago and one in New York, and Mr. Hall became Leo Stein's partner in the New York business.

Solomon Stein died in the early years of the company and Mr. Hirsh retired on January 1, 1918. The name was then changed to Stein, Hall & Co. and the business was incorporated. In March of that year Leo Stein was stricken with pneumonia. He died within a few days and Mr. Hall succeeded to the presidency.

The New York company, with headquarters at 285 Madison avenue, has branch offices in Boston, Philadelphia, Providence, Charlotte, N. C., and Rochester, N. Y. The Chicago business is now known as Stein-Hall Manufacturing Company, and the Canadian business as Stein-Hall, Ltd., Toronto.

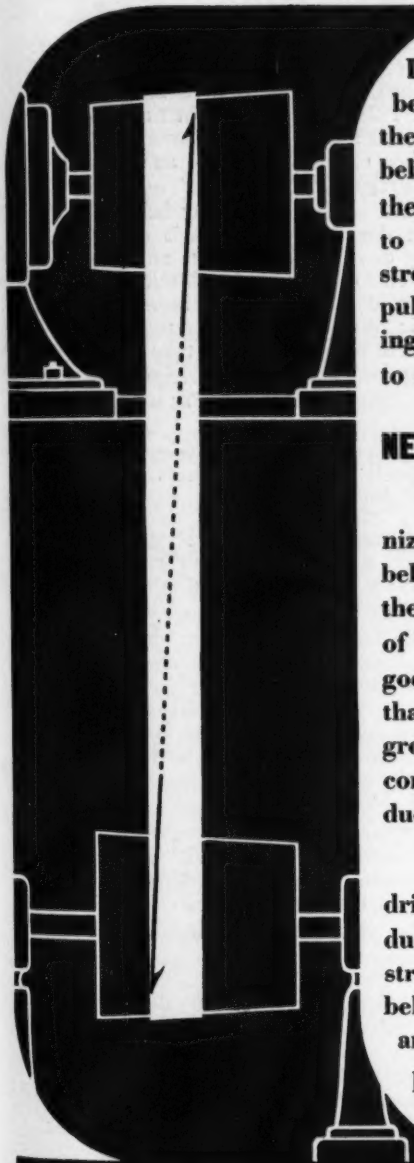
John Munro Returns from Mexico

BOSTON, Mass., May 6, 1940—John Munro, of Munro & Church Company, box board dealers, is returning from a motor trip to Mexico, accompanied by Mrs. Munro.

New ALEXANDER *CONE*

(PATENT APPLIED FOR)

A BELT DESIGNED AND CONSTRUCTED FOR UNUSUAL CONDITIONS OF SERVICE



It is a matter of common knowledge that a transmission belt will always climb to the high side or larger diameter of the pulley. In the operation of high speed cone drives this belt characteristic offers a difficult problem. No matter what the position of the belt on the pulleys the tendency of the belt to climb to the high side results in two strongly opposing stresses at the two points where the belt is in contact with the pulleys. This brings about a diagonal strain on the belt, causing undue stretch, weaving and slippage, all of which are fatal to efficient belt operation.

NEW CONSTRUCTION GIVES UNIFORM DRIVE OPERATION

The construction of the new Alexander Cone Belt recognizes the principle that in the satisfactory operation of any belt the line of greatest stress must parallel or nearly parallel the line of greatest resistance to distortion. In the construction of Alexander Cone Belts each separate piece of leather that goes into the belt is prepared in such manner as will insure that the line of greatest force will be applied to the line of greatest resistance. The belt is engineered to fit the peculiar conditions under which it operates. This has the effect of reducing slippage and stretch, and increasing belt life.

The new Alexander Cone Belt is designed to maintain drive speed consistent with paper speed; to increase paper production, to eliminate weaving and distortion and to lessen strain on both belt and bearings, thereby permitting longer belt life and high drive efficiency. In ordering the new Alexander Cone Belt specify by diagram relative positions of pulleys and the direction in which the belt is to run.

*ARROW INDICATES LINE OF FORCE

Alexander Brothers

PHILADELPHIA PENNSYLVANIA

BRANCHES AND DISTRIBUTORS IN PRINCIPAL CITIES

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for the Week Ending May 8, 1940

	High	Low	Last
A. P. W.	3⅜	3	3
Armstrong Cork Co.	41⅜	40	39⅝
Celotex Corp.	10⅜	10	10
Celotex Corp., pf.	69¾	69¾	69¾
Certain-Teed Products Corp.	6⅜	6¼	6¼
Certain-Teed Products Corp., pf.	30¼	30	30¼
Champion Paper & Fibre Co.	29½	27½	28½
Congoleum-Nairn Co.	22½	21¾	21⅞
Container Corp. of America	18¾	18⅛	18⅛
Continental-Diamond Fibre Co.	9	8½	9
Crown-Zellerbach Co.	21⅛	19¼	20⅛
Crown-Zellerbach Co., pf.	95	94	95
Flintkote Co.	18⅝	18	18
Robert Gair	4⅞	4⅜	4⅜
Robert Gair, pf.	19½	19	19¼
International Paper & Power	21¼	19⅝	20¼
International Paper & Power, pf.	72¾	70¼	71
Johns-Manville Corp.	71	69¼	70
Johns-Manville Corp., pf.	126½	126	126½
Kimberly Clark Corp.	45	44	44¼
MacAndrews & Forbes	33	32½	32½
Masonite Corp.	32½	32¼	32¼
Mead Corp.	14⅝	13½	14¼
Mead Corp., pf.	82	75	82
Paraffine Companies, Inc.	42	41	42
Paraffine Companies, Inc., pf.	101	99½	99½
Rayonier, Inc.	29⅞	26⅞	27¾
Rayonier, Inc., pf.	37½	35½	37
Ruberoid Co.	19¼	19	19
Scott Paper Co.	42⅞	42½	42½
Scott Paper Co., pf.	112½	112	112½
Sutherland Paper Co.	28⅞	27⅝	28½
Union Bag & Paper Corp.	18¼	17⅜	17⅝
United Paperboard Co.	6⅜	5½	5½
U. S. Gypsum Co.	83½	82⅝	83
U. S. Gypsum Co., pf.	181	178	181

New York Curb Exchange

High, Low and Last for the Week Ending May 8, 1940

	High	Low	Last
Brown Co., pf.	33½	29¼	33½
Great Northern Paper	49¾	49	49½
National Container Corp.	14½	12⅞	14
St. Regis Paper Co.	4⅛	3⅞	4
St. Regis Paper Co., pf.	81½	77	79
Taggart Corp.	5⅛	4⅝	4⅝

Sandy Hill Elects Officers

HUDSON FALLS, N. Y., May 6, 1940—The annual meeting of the Sandy Hill Iron and Brass Works was held last week at which Frank A. Juckett was re-elected president for the ensuing year. Among the other officers elected were Dr. Richard C. Tefft, of Boston, Mass., vice president, W. J. Elliot Simpson, secretary-treasurer, and J. Walter Juckett, assistant treasurer. Directors named for the year include Frank A. Juckett, Dr. Tefft, Philip J. Riley, Charles W. Kellogg, Elliot Simpson and William E. Stevenson.

National Paper Nets $87,556

The National Paper and Type Company and subsidiaries for six months to February 29, reports a net profit of $87,556, equal after dividend requirements on 5 per cent $50 par preferred stock to $1.07 each on 64,392 shares of $1-par common stock. This compares with $45,613, or 42 cents a common share, last year.

Ruberoid Sales Higher

The Ruberoid Company and wholly owned subsidiaries, quarter ended March 31, sales, $3,070,138 against $2,653,584 in the like 1939 quarter; loss, $60,723 after taxes and charges, compared with a loss of $94,427 in the first 1939 quarter.

International Profits Higher

BOSTON—At the annual meeting of International Paper and Power Company held in Boston on April 26, the fifteen retiring directors were re-elected. President Cullen, in some remarks to stockholders present, stated that while he does not have final figures on the results of operations for the first quarter of this year, preliminary figures indicate net earnings of about 2,900,000 as against net earnings of $12,428 for the first quarter of 1939. At the present time, he said, domestic business is not as good as it was in 1937 but the difference has been made up by an increase in the company's foreign shipments.

Mr. Cullen said further, "It is my belief that an improvement in domestic conditions is on the way and that shortly demands from home and from our regular foreign customers will absorb our productive capacity. It would take very little improvement in general domestic business conditions to restore the 1937 level. It will be our policy to take care of the needs of our regular domestic and foreign customers and take other foreign business only as we have free capacity.

"With the improvement in the physical conditions of our plants, such a level of business would produce very gratifying earnings."

Union Bag Nets $725,431

The Union Bag & Paper Corporation for the first quarter of 1939 reports a net income of $725,431, equal to 57 cents per share on the 1,262,729 shares of capital stock outstanding, according to a statement sent to stockholders today by Alexander Calder, president. This was after all expenses including provision for Federal income tax and compares with net income of 153,489 for the quarter ended March 31, 1939, equal to 12 cents per share on the same number of shares.

Net income for the twelve months ended March 31, 1940 amounted to $1,537,473, or $1.22 per share of capital stock outstanding, as against $703,130, or 56 cents per share for the preceding twelve months.

"Sales likewise showed considerable gains over the preceding quarter and over the comparative quarter a year ago," Mr. Calder stated in the report. "During the quarter ending March 31, 1940 sales amounted to $4,832,766. Sales for the twelve months ending March 31, 1940 amounted to $18,589,681, which is the highest amount for any twelve months' period since our Savannah plant was built." Comparative sales figures are $3,805,052 for the quarter ending March 31, 1939 and $16,414,073 for the twelve months ending March 31, 1939.

Stora Kopparbergs Good Report

The Stora Kopparbergs Bergslags Aktiebolag, of Falun, Sweden, represented in this country by The Stora Kopparberg Corporation, 230 Park avenue, New York, manufacture sulphite and sulphate pulp, newsprint and paper board. The firm, founded in

1288 and said to be the oldest company in the world, has just issued its interesting annual report for 1939.

Net sales for 1939 amounted to 84,564,861.05 Kr. (a kroner being equivalent to about .25 cents). Net profit for the year amounted to 8,180,948.77 Kr.; with profit carried over from 1938 of 4,450,030.92 Kr., making available for dividends 12,630,979.69 Kr. Dividends declared amounted to 6,000,000,000 Kr.

Capital assets included 750,000 acres of productive forest land, hydro-electric power plants, industrial plants etc. Cash in banks amounted to 69,756,339.60 Kr., which was six times current liabilities. Production of pulp and paper included 81,975 long tons of newsprint, against a capacity of 100,000 tons, and 67,908 long tons of chemical pulp, against a capacity of 100,000 tons, and 4,749 long tons of building paper. Output of pulp for the year showed a decrease due to the reconstruction of the unbleached sulphite pulp mill.

The company's chemical production included 1,584 tons of liquid rosin, 3,203 tons of liquid chlorine, 30,884 tons of limestone, and 17,797 tons of sulphuric acid.

Hinde & Dauch Nets $208,223

The Hinde & Dauch Paper Company and subsidiaries for the March quarter reports a net profit, subject to audit, of $208,223, equal after dividend requirements on $5 preferred stock, to 45 cents each on 360,250 common shares, against $152,575, or 30 cents a share, last year; sales, $3,451,174, against $3,078,655.

Dixie-Vortex Earnings Up

The Dixie-Vortex Company and subsidiaries for twelve months to March 31 reports a net profit of $858,385, equal after dividend requirements on Class A stock, to $2.03 a share on 202,666 common shares, against $719,548 or $1.34 a share for the twelve months to March 31, 1939.

Crystal Tissue Profits Up

The Crystal Tissue Company for the arch quarter reports a net income of $34,028, equal, after preferred dividends, to 31 cents each on 93,000 common shares, against $18,480, or 15 cents a common share, last year; net sales, $494,773, against $393,255.

Lily-Tulip Cup Earnings Up

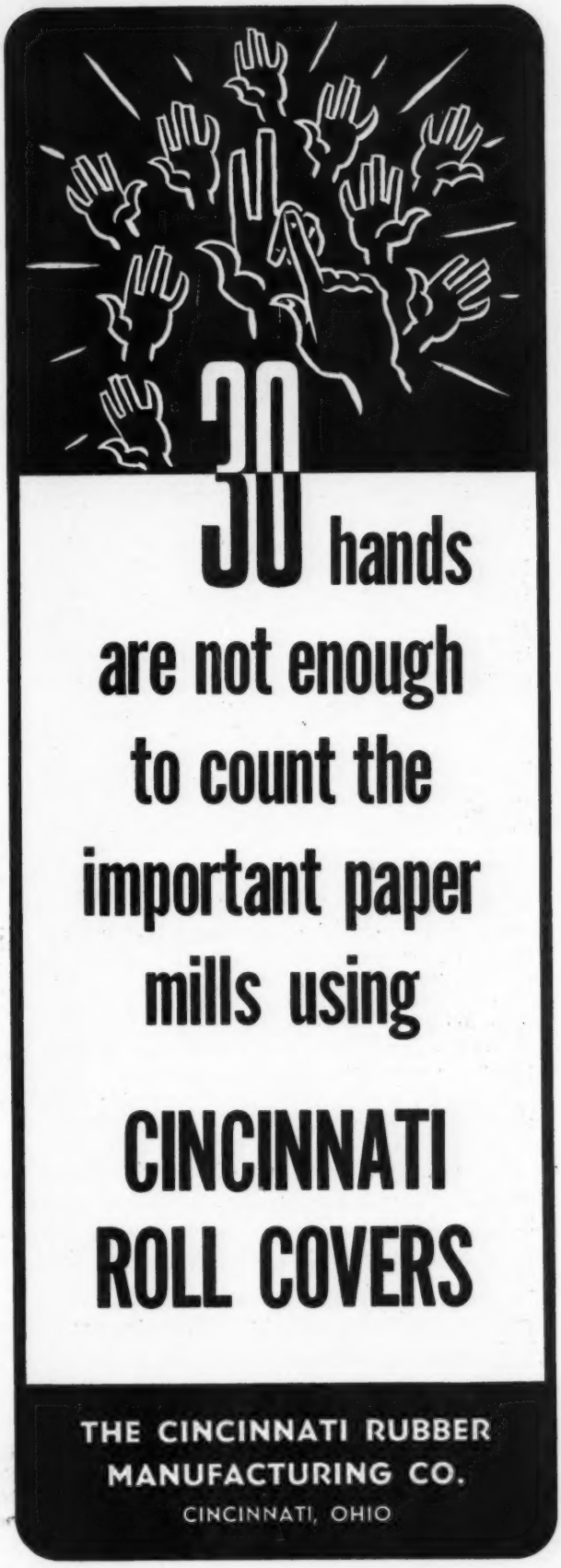
The Lily-Tulip Cup Corporation and subsidiaries, for the year to March 31, reports a net profit of $661,677, equal to $3.49 each on 189,539 no par shares of capital stock.

Quebec Pulp Reports Loss

The Quebec Pulp and Paper Corporation and subsidiaries for 1939 (Canadian currency) reports a net loss before depreciation of $244,957, against $248,454 loss before depreciation in 1938.

Westminster Profits Rise

The Westminster Paper Company, Limited, for the year to January 31, report a (Canadian currency) net income of $142,027, against net income of $87,946 in preceding fiscal year.



New TAPPI Members

The executive committee of the Technical Association of the Pulp and Paper Industry have elected the following members:

Harold M. Annis, assistant to the vice president in charge of manufacture, Oxford Paper Company, New York, N. Y., has been transferred from the associate to the active grade.

A. W. Ayles, chief chemist, Dexter Sulphite Pulp and Paper Company, Dexter, N. Y., attended Syracuse University.

Philip Bloom, graduate student, New York State College of Forestry, Syracuse, N. Y.

Carl A. Briggs, chemist, Fraser Paper, Ltd., Madawaska, Me., is a 1934 graduate of the University of Maine.

Paul R. Buchheit, paper machine helper, Gardner-Richardson Company, Middletown, Ohio, attended the University of Maine.

Merrill Dupee, technical director, Brownville Board Company, Brownville, N. Y.

E. O. Ericsson, chief chemist, Puget Sound Pulp and Timber Company, Bellingham, Wash., has been transferred from the associate to active grade.

J. A. Extrom, technical director, Tomahawk Kraft Paper Company, Tomahawk, Wis., has been transferred from the associate to active grade.

Orcutt W. Frost, supervising research engineer in fiber products, U. S. Gypsum Company, Chicago, Ill., is a 1923 graduate of the University of Minnesota and was formerly mill superintendent of the Wood Conversion Company, Cloquet, Minn.

Charles W. Hoffman, chemist, Riegel Paper Corporation, Milford, N. J., has been transferred from the associate to active grade.

Garold C. Jenison, research chemist, Wierton Steel Company, Wierton, W. Va., is a 1920 graduate of Taykio College and was formerly with the Continental Can Company, Chicago, Ill.

Harold C. Kelly, cellulose chemist, Dow Chemical Company, Midland, Mich., is a 1937 graduate of Syracuse University.

James R. Lientz, chemical engineer, Swenson Evaporator Company, Harvey, Ill., is a 1937 graduate of the University of Michigan.

Charles A. Lightfoot, foreman of paper processing, the Todd Company, Rochester, N. Y., attended the University of Minnesota and was formerly with the Northwest Paper Company, Cloquet, Minn.

Melvin H. Lustbader, chemist, Autographic Register Company, Hoboken, N. J., is a 1937 graduate of Columbia University.

James F. Maquire, manager of industrial development, Reichhold Chemical, Inc., Elizabeth, N. J., is a 1917 graduate of the Massachusetts Institute of Technology and was formerly with Bird & Son, Inc., E. Walpole, Mass., and the Congoleum-Nairn Company, Kearny, N. J.

William W. Marteny, student, Institute of Paper Chemistry, Appleton, Wis., is a 1936 graduate of the University of Arizona.

Henry E. Obermanns, technical assistant to the paper mill superintendent, Hammermill Paper Company, Erie, Pa., has been transferred from the associate to the active grade.

R. Byram Porter, Jr., research chemist, Bennett, Inc., Cambridge, Mass., is a 1931 graduate of the Massachusetts Institute of Technology.

Merrill A. Scheil, director of metallurgical research, A. O. Smith Corporation, Milwaukee, Wis., is a 1927 graduate of the University of Wisconsin.

Gordon E. Seavoy, vice president, Swenson Evaporator Company, Harvey, Ill., is a 1929 graduate of the University of Michigan.

George H. Sheets, student, Institute of Paper Chemistry, Appleton, Wis., is a 1937 graduate of Ohio State University.

William C. Starling, chief chemist, Hummel-Ross Fibre Corporation, Hopewell, Va., attended the University of North Carolina and was formerly with the Tubize-Chatillon Corporation, Hopewell, Va.

Addison F. Wardwell, president, Carthage Machine Company, Carthage, N. Y.

Nathaniel P. Wardwell, secretary and treasurer, Carthage Machine Company, Carthage, N. Y., is a 1927 graduate of the Sheffield Scientific School, Yale University.

Wright M. Walton, chemist, West Virginia Pulp and Paper Company, Piedmont, W. Va., is a graduate of West Virginia University (1925) and the University of Maryland (M.S. 1928).

Simplified Practice for Tissue

The United States Department of Commerce has just released the printed copies of the revision of Simplified Practice Recommendation R-46-39. This represents another forward step in the constructive work the Tissue Association is doing to protect the distributors and consumers of tissue paper products.

Buyers who specify and get tissue paper products manufactured in accordance with the standards set forth in Simplified Practice Recommendation R46-39 will not be short-changed on size, basis weight or count. They can be sure of the furnish (fiber content) of the grade they buy and will know what information to demand from the salesmen to protect themselves. They will be informed of the standards for wrapping, marking, put-ups and packing which have been worked out jointly by manufacturers, distributors and consumers with the help of the Division of Simplified Practice of the United States of Commerce.

The first Simplified Practice Recommendation for Tissue Paper, which was adopted in 1926, was initiated by The Tissue Association and the Association again took the lead in working out the present revision. Now as a further step it is working on association labels which will be the customer's guarantee of getting the quality he specifies.

The finishing touches are being put on a new wrapping tissue label under the direction of a committee from the Wrapping Tissue Division of the association, consisting of the following: W. E. McIntyre, Chairman, McIntyre Brothers Paper Company; George Bidwell, Adams Paper Company; Howard Larsen, Crystal Tissue Company; Wm. Shafer, Jr., Flower City Tissue Mills; R. W. Sweet, Sweet Brothers Paper Company.

This label will be issued only under license to manufacturers whose products meets all the standards of the Simplified Practice Recommendation and the association and will be a continuing protection for the distributor and consumer of wrapping tissue. Other Divisions of the Tissue Association are working on further standardization programs, all looking toward better protection for the distributor and consumer.

New York Plants Trees

[FROM OUR REGULAR CORRESPONDENT]

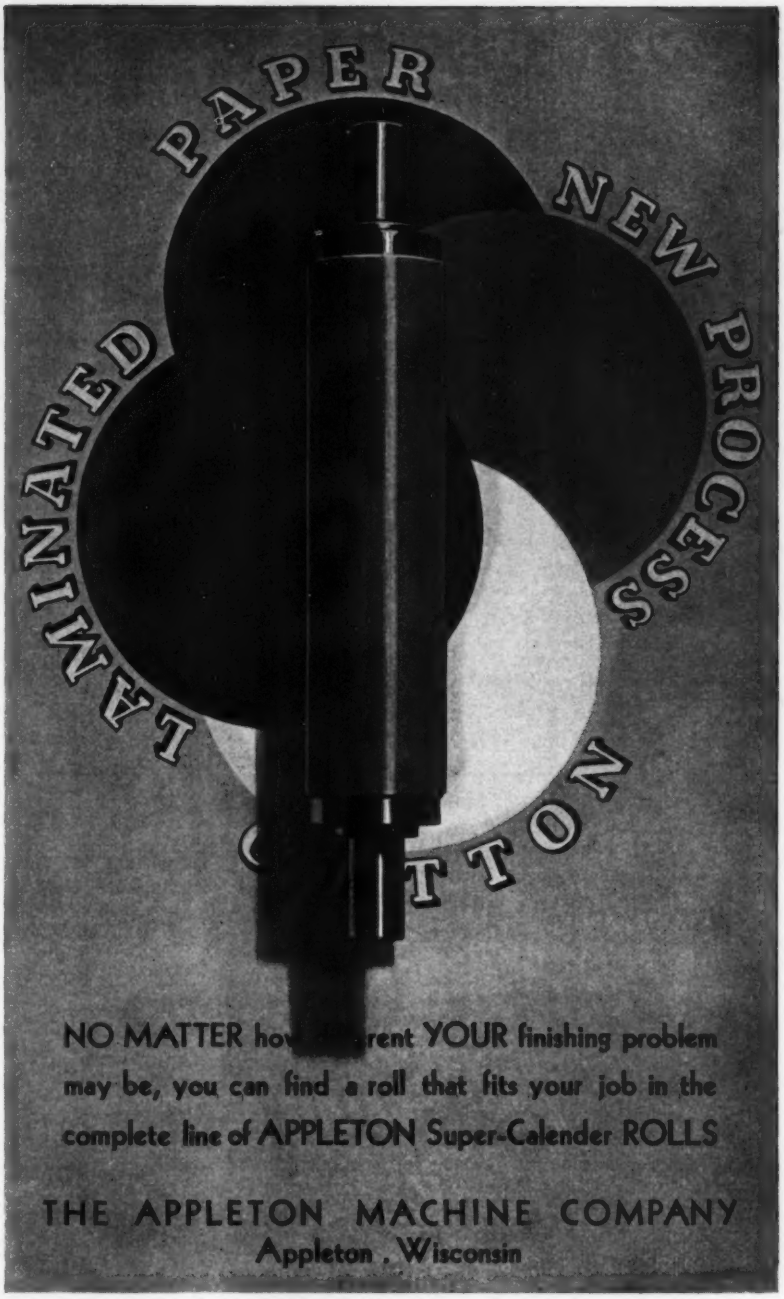
FORT EDWARDS, N. Y., May 6, 1940 — About 11,000,000 young trees raised at the state's forest tree nurseries at Saratoga Springs and Lowville will within the next month be planted in seventeen counties for which allotments have been made. The planting program this spring means that 15,000 acres of land will be reforested which will bring the reforestation areas completed as woodlands to 316,500 acres. The reforestation program of the state is showing good results in plantings since the program of placing young trees on idle land was started. Officials of the Conservation department feel that individuals who own lands unsuited for any purpose except growing white pine or other trees should be encouraged by results that have already been shown on lands owned by counties and cities and plant a few acres of trees every spring. It is claimed that there is considerable idle land in this section of the state on which trees should be growing for the benefit of future generations.

Log Drive Starts

GLENS FALLS, N. Y., May 6, 1940—The annual log drive for the mills of Finch, Pruyn & Co. has been started from the Adirondack woodlands and approximately 32,000 cords of pulpwood will come down the Hudson River this spring. The timber has been peeled and sawed and the amount to reach here will be about 10,000 cords less than last Spring. The drive is expected to reach the paper mills here early in July. The drive starts on a number of tributaries of the Hudson in the vicinity of Newcomb and about the end of this month will be brought together on the main river. About 25 lumberjacks are being employed while more will be added as it progresses. William Smith, foreman of the drive, succeeds the late John Donahue, who died a few months ago. Finch, Pruyn & Co. maintains an extensive timber tract at Newcomb which supplies its pulpwood needs yearly.

Hydraulic Equipment Corp. Formed

WATERTOWN, N. Y., April 29, 1940—A new concern to be known as the Hydraulic Equipment Corporation has been incorporated under state laws to do business here with a capitalization of $50,000. The board of directors is composed of Abe Cooper, president of the Bagley & Sewall Company, Raymond B. Frank and Lawrence R. Ormiston. The concern will operate in the building which is occupied by the Bagley & Sewall Company. The new company will use the facilities of the Bagley & Sewall Company, which manufactures pulp and paper making machinery, vises, power pumps, etc., and will produce hydraulic machinery of various kinds. The charter is broad and not only provides for the designing, manufacturing and selling of hydraulic equipment but for engaging in all of the necessary collateral activities. The certificate is perpetual and there may be from three to seven members on the board of directors.


LAMINATED PAPER
NEW PROCESS
NO MATTER how different YOUR finishing problem may be, you can find a roll that fits your job in the complete line of APPLETON Super-Calender ROLLS
THE APPLETON MACHINE COMPANY
Appleton, Wisconsin

PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

Henry J. Berger
EDITOR

Vol. 110 May 9, 1940 No. 19

COMING EVENTS IN PAPER INDUSTRY

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Fall Meeting, Olympic Hotel, Seattle, Wash., August 20-23.

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—Second Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

AMERICAN PULP AND PAPER MILL SUPERINTENDENTS ASSOCIATION, Annual Convention, Netherland Plaza Hotel, Cincinnati, Ohio. June 18-20.

NATIONAL SAFETY COUNCIL, PAPER AND PULP SECTION, Annual Meeting, Stevens Hotel, Chicago, Ill. October 7-11.

INFLATION AND PRICES

Since hostilities began in Europe last year the question uppermost in many minds is whether the great world-wide inflation of commodity prices that accompanied and followed the world conflict of 1914-18 will be repeated as a result of the present conflict, states the Guaranty Trust Company in discussing the effects of the conflict on price levels in the current issue of *The Guaranty Survey*, its monthly review of business and financial conditions in the United States and abroad.

"The answer to this question will determine in no small measure the course of economic developments in the near future and the seriousness of the readjustments through which the world will have to pass after the conflict is over," *The Survey* states. "The events of the last few months indicate that inflationary forces are again at work but do not preclude the hope that monetary disorders comparable in severity with those of the last conflict can be avoided. . . . The chief hope of avoiding inflation seems to lie in the possibility that the conflict may be of short duration. Otherwise it appears very unlikely that the costs can be met except by the inflationary methods with which the world has been only too familiar in the past. Greater self-sufficiency and closer governmental controls may mitigate these effects, but that the painful cycle of inflation and deflation can be avoided is probably too much to expect."

In pointing out that a major conflict of the magnitude of the present struggle is always inflationary, *The Survey* states in part: "The inflationary effects of a conflict are so axiomatic that the mere fact of an outbreak of hostilities appears to create a strong psychological influence in favor of higher prices. This seems to be the main explanation of the buying rush and the sharp price advance that swept over commodity markets immediately after the start of the European conflict, raising the general level of wholesale commodity prices in this country 5 per cent, between August and September. Since then, occasional rumors suggesting the probability of more intense fighting have been followed by rising tendencies in commodity markets, while 'peace scares' have caused minor price reactions. On the whole, these alternating influences have approximately balanced one another, with the result that the price level in this country has shown little change in the last seven months and remains about 4 per cent above the pre-conflict figure."

In discussing the inflation movement in other countries, *The Survey* says in part: "In some countries, however, both belligerent and neutral, the price movement has been much more pronounced. The wholesale price level in Great Britain has risen steadily since the beginning of the conflict and, according to the latest available figures, is 32 per cent higher than last August. This increase compares with one of 17 per cent in the first six months of the last world conflict. The advance in Canada has amounted to 15 per cent. No comparable data are available for France, but a compilation given in *The Economist* last month indicates that the expenditures of a typical French working-class family for food have risen more than 17 per cent, of which it is estimated that 12 or 13 per cent is due to the conflict. In Germany, on the other hand, where prices are subject to rigid governmental controls, the wholesale price level has remained almost unchanged."

In discussing the underlying factors in inflation during the stress of conflict, *The Survey* states in part: "The various steps taken by belligerent nations to control prices, consumption and profits are, in the final analysis, directed at a single goal, to remove, or at least to narrow, the spread between purchasing power and the supply of goods and services. The ideal method would be for a government to maintain the balance between purchasing power that it needed for itself. Such a policy would be in accord with economic realities, since it is clear that the combined consumption of the government and its citizens cannot greatly exceed the aggregate current supply. To what extent the belligerent countries will succeed in their efforts to approximate a balance between purchasing power and supply cannot be gauged on the basis of developments thus far. There can be no doubt that the dangers to be avoided and the possible means

of avoiding them are much better recognized than they were in the last conflict."

Although warning that the inflationary movement would be felt soon in this country has been sounded by some economists, no indication of sharply advancing commodity prices yet appears, though a normal rise is expected. According to the monthly joint study of the National Association of Credit Men and the Commerce Department, issued on April 29, manufacturers' sales of paper and allied products rose .05 per cent in March over February 1940, and dollar sales were 2.1 per cent below March 1939. Wholesale sales of paper and its products in March were up 7.5 per cent above sales of the preceding month and dollar sales for March 1940 were 3.7 per cent below March of last year.

Bids Asked for Waste Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 8, 1940—Government Printing Office will receive bids on May 27 for paper shavings, waste paper, and other waste that may accumulate during the fiscal year beginning July 1, 1940.

Among the estimated quantities for which bids will be received are: white and colored shavings from blanks, blank books, and clean waste, free from ground wood, 100,000 pounds; white shavings from book and mimeograph papers and clean white waste, free from ground wood, 400,000 pounds; white and colored shavings and clean waste, free from ground wood and binder board trimmings, 100,000 pounds; newsprint and wood manila shavings and clean waste, 200,000 pounds; postal card bristol trimmings and clean waste, free from ground wood, 200,000 pounds; used white monotype keyboard paper, in rolls, free from ground wood, 70,000 pounds; binders board, strawboard, and chipboard cuttings, 200,000 pounds; paper wrappers from rolls and flat stock and miscellaneous paper waste, free from oiled and tarred papers, 2,000,000 pounds; printed paper waste, free from ground wood, 400,000 pounds; discarded publications, consisting of various grades of printed paper, etc., 400,000 pounds; wrapping twine and rope from bundles, 4,000 pounds; and waste and scrap book cloths, including cotton (bleached and unbleached), canvas (white and colored), unbleached linen canvas, cotton drilling (drab), and buckram, 15,000 pounds.

Paper Production Declines in Japan

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 1, 1940—The staple fiber output in Japan declined 2.2 percent during January as compared with December, according to a report from the American Consulate, Tokyo. It is also reported that paper production declined 5.2 percent, while rayon yarn production declined 4.6 percent. The National Federation of Lumber Merchants reportedly petitioned the government for more lumber. A resolution recently was adopted by 250 delegates suggesting that the government-owned forests be exploited for timber for relief of the acute shortage now being experienced.

Production Ratio Report

These statistics are based upon paper production reports to the American Paper and Pulp Association.

COMPARATIVE MONTHLY SUMMARIES[1]

Months	1940	1939	1938	1937	1936	1935	1934
January	90.6%	77.5%	63.9%	90.3%	76.1%	65.8%	.....
February	86.3%	81.7%	68.7%	90.1%	77.9%	70.0%	.....
March	84.0%	84.0%	69.6%	90.3%	76.0%	70.5%	.....
April	86.1%	82.9%	68.3%	92.1%	82.3%	70.0%	.....
May	.....	80.2%	69.0%	90.6%	81.6%	69.4%	.....
June	.....	79.7%	66.0%	87.3%	80.7%	72.3%	.....
July	.....	75.2%	72.0%	81.8%	77.3%	64.9%	.....
August	.....	82.9%	77.2%	82.9%	81.5%	70.9%	.....
September	.....	88.7%	76.3%	78.6%	80.5%	71.9%	58.2%
October	.....	96.6%	82.5%	73.5%	87.6%	75.6%	64.7%
November	.....	97.2%	79.6%	61.9%	88.0%	75.3%	61.7%
December	.....	91.1%	74.4%	54.5%	85.9%	71.2%	59.6%
Year Average	.....	84.9%	72.3%	80.6%	81.3%	70.5%	.....
First 17 weeks	87.0%	81.7%	67.7%	90.7%	78.2%	68.9%	.....

COMPARATIVE WEEKLY SUMMARIES[1]

CURRENT WEEKS, 1940		CORRESPONDING WEEKS, 1939	
March 23	85.1%	March 25	84.1%
March 30	82.7%	April 1	86.2%
April 6	81.9%	April 8	83.7%
April 13	83.4%	April 15	81.0%
April 20	89.1%	April 22	82.7%
*April 27	91.1%	April 29	84.3%

The following statistics show the number of mills reporting by ratio groups:

	Number of Mills Reporting—Current Weeks					
Ratio Limits	Mar. 23, 1940	Mar. 30, 1940	Apr. 6, 1940	Apr. 13, 1940	Apr. 20, 1940	Apr. 27, 1940
0% to 50%	53	49	61	58	47	37
51% to 100%	242	245	226	226	220	193
Total Mills Reporting	295	294	287	284	267	230

PAPERBOARD OPERATING RATIOS

Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1936	62%	67%	67%	70%	69%	70%	69%
1937	80%	86%	86%	88%	85%	77%	66%
1938	54%	60%	61%	57%	58%	56%	57%
1939	60%	67%	71%	69%	64%	67%	63%
1940	71%	70%	69%	70%	....	....	....

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1936	75%	78%	82%	80%	74%	72%
1937	74%	69%	65%	55%	45%	73%
1938	66%	66%	70%	65%	59%	61%
1939	72%	74%	84%	81%	71%	70%
1940	....	....	....	....	....	....

Week end. Mar. 23, 1940—70%
Week end. Mar. 30, 1940—67%
Week end. Apr. 6, 1940—68%
Week end. Apr. 13, 1940—66%
Week end. Apr. 20, 1940—72%
Week end. Apr. 27, 1940—75%

[1] Production-capacity ratios are based upon six-day capacity ratings which are adjusted periodically to correspond with the ratings reported by individual companies. Ratios are subject to revision until all reports are received.

* Preliminary figure.

St. Croix Employees Insured

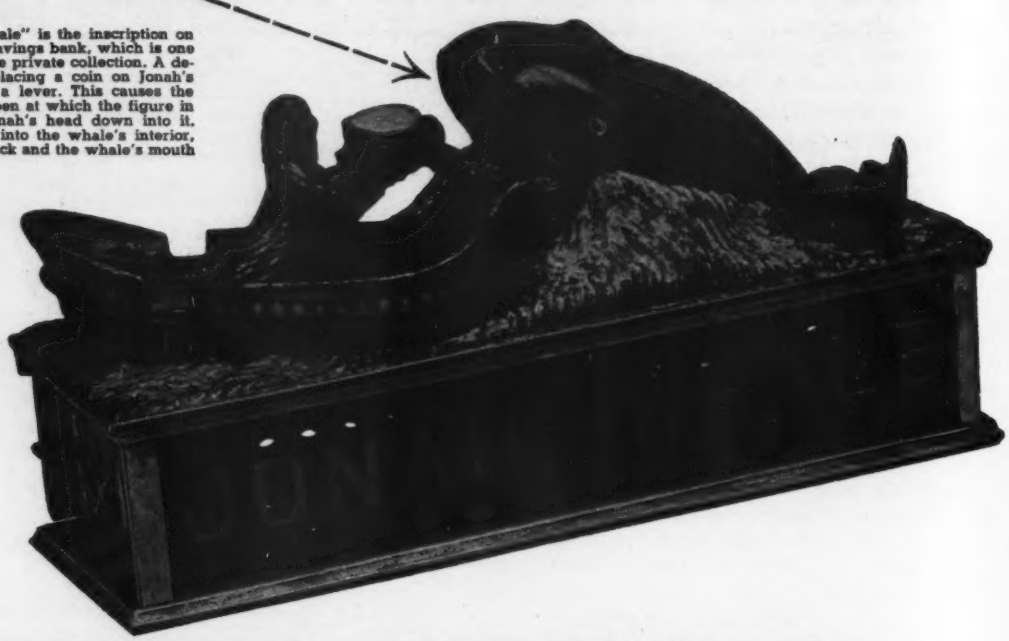
The St. Croix Paper Company, paper manufacturer, of Woodland, Maine, and the Eastern Pulp Wood Company, pulpwood operator, of Calais, Maine, have adopted group programs which provide more than 400 employees with a total exceeding $570,000 of life insurance. Announcement of the plan was made by A. L. Hobson, president of the St. Croix Paper Company.

The group plan is being underwritten by the Metropolitan Life Insurance Company on a cooperative basis whereby the employees contribute fixed amounts and the employer bears the balance of the entire net cost.

Each participating employee in the general classification receives $1,000 of life insurance. The plan also includes the distribution of pamphlets on health conservation and disease prevention.

A NOVEL WAY TO SAVE MONEY

"Jonah and the Whale" is the inscription on this old-fashioned savings bank, which is one from many in a large private collection. A deposit is made by placing a coin on Jonah's head and pressing a lever. This causes the whale's mouth to open at which the figure in the boat pushes Jonah's head down into it. The coin slides off into the whale's interior, the figure moves back and the whale's mouth closes.



THERE ARE DIFFERENT WAYS TO SAVE ON CHEMICALS, TOO

Cyanamid's conveniently located plants and warehouses will help you save with prompt, efficient delivery service on paper chemicals and specialties. Call Cyanamid for

SIZES	SULPHONATED OILS
AEROSOL* WETTING AGENTS	DEFOAMERS
ALUM	TAPIOCA FLOUR
COATING MATERIALS	FILLERS

AND OTHER PAPER CHEMICALS

*Trade-mark of American Cyanamid & Chemical Corporation applied to wetting agents of its own manufacture.

AMERICAN CYANAMID & CHEMICAL CORPORATION
30 ROCKEFELLER PLAZA • NEW YORK, N. Y.

Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

A Flexible Laboratory Pulp Bleacher

By Kenneth A. Kobe[1] and John L. Sundling[1]

One of the important pieces of equipment in the semiplant scale pulp laboratory *(1, 2)* of the University of Washington is a pulp bleacher. This piece of equipment was designed to give great flexibility in capacity and density of pulp and to avoid metallic contamination. Flexibility was accomplished by sectionalizing the control draft tube. Contamination was prevented by using a ceramic bleach-tank tile as the tank lining and rubber covering all metal parts in contact with bleach liquor. It is believed that many of the features of this bleacher are unique enough to warrant a short description of the bleacher, so that other laboratories may profit by the design experience in this one.

The bleacher was designed as a unit to take the pulp from the digester that produces approximately 30 lb. of pulp. To produce a suspension of 3 per cent pulp, a capacity of approximately 120 gal. is required. A steel tank (Fig. 1) *A* 32 in. diam. by 48 in. height was used; to the inside of this wire screen having mesh 2 in. by 4 in. was spot welded. The cement and tile lining was installed by the engineers of the Stebbins Engineering Co. A sand-cement lining *B* approximately 1½ in. thick was placed on the inside wall of the tank. The bottom corners were filleted with the cement and the bottom sloped in such a manner as to give drainage to the dump valve. In the cement wooden cores were placed which were removed later to give openings for the 3 legs for the draft tube and the agitator bearing. The seat for the dump valve was already in place and cement poured around it. After the legs and bearing were installed, the cement surface was lined with white bleacher tile *C* set with Pennchlor asplit cement. This was heated for several days to set the cement.

The draft tube *D* is made in 3 pieces to allow the bleacher to operate at three capacities. The tubes are constructed of 16-gage black iron 12 in. diam. by 13 in. high. The lower tube is curved in at the bottom and 3 legs *E* of ⅝ in. rod are attached by welding to the tube. These 3 legs are locked to the steel bottom of the tank. The top of this tube and of the middle tube has a 2-in. bell *F* which allows the tube above to slip into it and be held snugly. All parts are covered with an ⅛-in. coating of soft rubber including the legs down to the beginning of the threads. The rubber on rubber contact at the bell joints gives a tight joint that holds the tubes perfectly vertical.

The agitator *G* is a 3-blade marine-bronze propeller, 10-in. diam., right hand spin with 11-in. pitch, and is hard-rubber covered. The shaft *H* is stainless steel, ⅝-in. diam., and hard-rubber covered down to the bearing. The bearing *I* is a Goodrich cutless-rubber marine bearing, the bronze top of which is rubber covered. The bearing is held in a housing *J* which admits a water inlet *K* and has an ordinary packed-bearing *L* at the bottom to prevent the water from leaking out at the lower end. The rate of flow of water is adjusted by a flow-adjustment cock (not shown), so that a very slow stream covers the inner rubber surface of the bearing to lubricate it. The outward flow of water prevents bleach liquor from contacting the shaft or bearing, and the rate of flow is so low that no appreciable dilution of the liquor occurs. The shaft ends in a vertical thrust bearing *M* mounted in a special casing to take up the upward pull

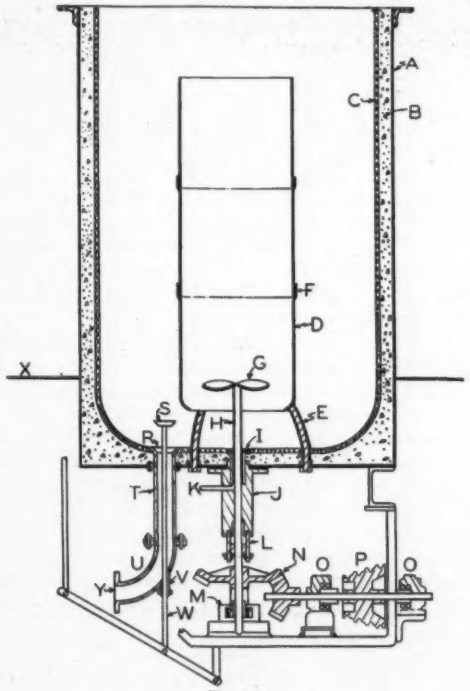


FIG. 1.

[1] Department of Chemical Engineering, University of Washington, Seattle, Wash.

of the bearing and supported on the channel beam construction (not shown completely). The shaft is driven through bevel gears *N*, 6-in. steel driven gear and 2-in. fiber composition pinion gear, giving a 3 : 1 speed reduction. The shaft of the driver gear is supported by 2 ball bearings *O* and carries a 4-speed v-belt pulley *P*, belted to a ¼-h.p. motor (not shown). With this arrangement speeds of 225, 300, 375, and 450 r.p.m. can be obtained.

The dump valve consists of a rubber-covered seat *R* and plug *S*. The seat connects to a short tube *T* and an ell *U*, all of which is rubber lined. Through a side arm *V* on the ell passes the stainless steel plug-rod *W* to seat or open the plug valve. This rod is actuated by a lever arm arrangement and may be operated from the operating balcony *X* on which the bleacher sets or from below. The pulp suspension is taken from *Y* to the bleach washer.

Although this bleacher was designed for a low density bleacher, it has been suggested that it can also be used for high density bleaching. This can be accomplished by the removal of the propeller and shaft and substituting a shaft and short flight of conveyor, all rubber-covered as was the shaft and propeller. For high density, no draft tube is needed, so the lower tube should be removable and merely set in a 2-in. collar held by the 3 legs.

This bleacher has given excellent service in operation. The white tile lining makes the progress of bleaching more visible. The avoidance of metal corrosion and catalysis of bleaching reactions gives comparison with plant operations.

Literature Cited

(2) Kobe. *Pacific Pulp Paper Ind.* 13, no. 11:18-23 (1939).
(1) Kobe. *Paper Ind.* 21:865-7 (1939).

The Dieckbrader Vacuum Deckle for Cylinder Machines*

By A. Yraola[1]

Abstract

At times in cylinder machine operation it is desirable to make one or more plies narrower than full machine width. The Dieckbrader vacuum deckle has been devised for this purpose and it is described with its advantages over previous methods. As liner furnish is much more expensive than filler furnish of most grades of paperboard important economies can be effected in this field.

In the course of routine operation of cylinder machines it is frequently found that the order being run does not fully trim out to machine width. In such cases most mills run the sheet over the machine full width and trim off the excess paper or board at the slitters.

Field for Economies

In mills with multicylinder machines making lined board, the trim or shaving is generally returned to the filler beaters to be repulped. Where the sheet being made is a lined board this means that everything going to make up the offcut, including liner and perhaps underliner and backliner as well as filler, is returned to the filler beater. The liner furnish of most paperboards is much more expensive than the filler furnish due to the use of large proportions of high grade pulps or perhaps the use of expensive dyes or relatively large amounts of chemicals for such purposes as sizing. The underliner and backliner furnish is also apt to be more expensive than the filler furnish for the same reasons.

It is not possible to arrange the orders so that they trim to the full width of the machine in all cases in the average paperboard mill, and as a result a certain percentage of the full width of the machine's production is lost as trim. Probably an average figure for most mills would fall between 5 and 10 per cent. On usual grades of single-lined paperboards, the liner cost ranges from 30 to 50 per cent of the total furnish cost, and it can be seen from this with a shaving of 10 per cent that from 3 to 5 per cent of the total furnish cost is represented by the liner on the shaving. In consequence in most board mills, and particularly those making the higher grades of paperboard, there is an appreciable loss. The fact that executives in charge of board mill operations have been aware of the loss due to the liner on the offcut being returned to the filler beaters is shown by the devices adopted during past years to prevent this loss.

Older Means of Narrowing Liner

One method has been to wind the liner cylinder mold with an extra deckle of such width that liner was formed only to the extent required by the order being run. This method has the expensive disadvantage of requiring the machine to be shut down, while the deckle is being applied, and again while it is being removed. Another drawback is that it is possible to mark the face of the liner cylinder, if the wide deckle is left on for a long period. The presence of a volume of dead stock is liable to adversely affect formation by altering the usual conditions of flow, and a complete saving of the unneeded liner stock is not attained, because some of the pulp works over and forms on the part of the cylinder face nearest the deckle, which when added to the pulp already present makes the liner thicker on one side of the salable board than on the other side or edge.

Shower deckles have been widely used, and, apparently, they avoid most of the difficulties and drawbacks experienced with the wide cloth deckle. A shower deckle washes the unnecessary liner stock from the portion of the cylinder face making liner

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Roosevelt Hotel, New York, N. Y., Feb. 19-22, 1940.
[1] Member TAPPI, Chemist, Hinde & Dauch Paper Co. of Canada Ltd., Toronto, Ont.

for the offcut. Study of actual operations showed that no saving was actually attained through the use of a shower deckle. The stock washed from the face of the liner or other cylinder accumulated in the end of the vat directly under the shower deckle at a higher consistency than the stock normally furnished to the vat, and the sheet formed was heavier on the portion of the cylinder mold adjacent to the shower deckle than it was at the other end. In the case of a liner cylinder this means the paperboard made for the customer's order will have a thicker liner at one edge than at the other.

As study of this problem showed that savings of at least $500 a month could be made in a 50-ton mill making regular grades of patent coated and bleached manila, it became obvious that a new means would have to be devised for separating unnecessary liner or other expensive furnish from the filler stock or trim. Consideration of the experience already mentioned showed that the ideal method would include means for removing excess liner or other unwanted portion of the sheet only after the sheet had left the stock in the vat, and before it had been bonded to the other plies of the sheet by the couch roll.

The Vacuum Deckle

A solution for this problem that has been ideal in the 2 years of continuous operation was found in the vacuum deckle which was invented for the purpose outlined. The vacuum deckle consists of an adjustable vacuum member extending over the cylinder mold just above the level of the stock in the vat. It is movably connected to a separating tank and vacuum pump by means of piping. A centrifugal pump is connected between the separating tank and the stock chest supplying the cylinder mold, to which the vacuum deckle is applied. This is shown in Fig. 1.

In operation the excess stock is removed by the

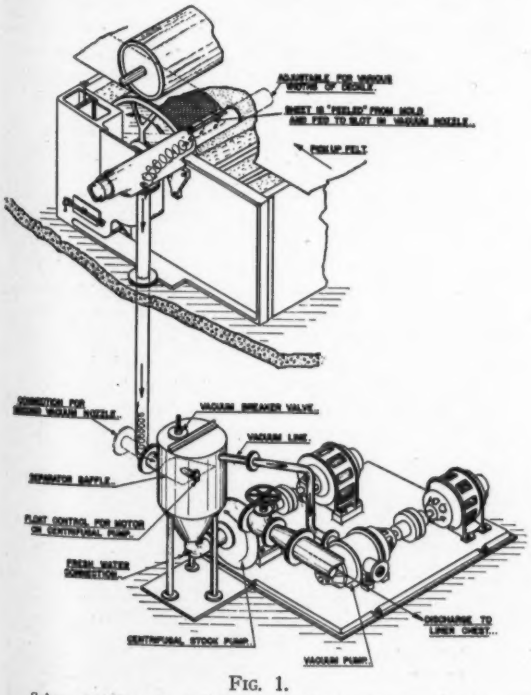


FIG. 1.
Schematic Diagram of Shartle "Dieckbrader" Vacuum Deckle.

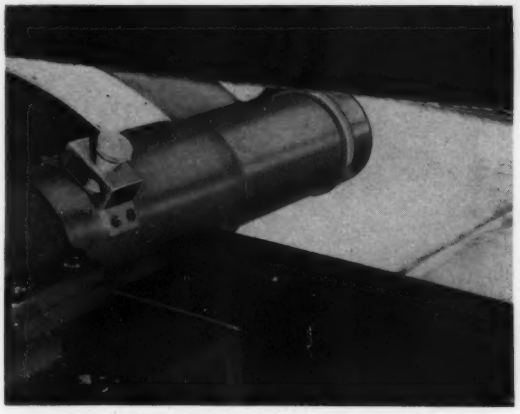


FIG. 2.
Close Up Showing the Vacuum Deckle in Operation on a Liner Cylinder Mold.

vacuum deckle from the cylinder mold. The vacuum supplied by the pump causes the stock removed to enter the separating tank. The pulp falls to the bottom of the tank, while the air separated goes to the vacuum pump and is exhausted to the atmosphere. The pulp is pumped from the bottom of the separating tank back to the appropriate stock chest.

The stock is removed cleanly and completely from the face of the cylinder mold. As it is taken entirely away from any part of the machine connected with sheet formation or stock flow, there is no interference with sheet formation, and there is no cause for the liner of the sheet to be uneven in thickness across the machine. A close-up of the vacuum deckle operating on a liner cylinder mold is shown in Fig. 2.

As the stock removed from a cylinder mold is returned to the appropriate machine chest, there is no necessity for the machine tender to reduce or increase the flow of stock to that cylinder from the machine headbox when altering the trim on a run. When the vacuum deckle is in operation all that is necessary to change the width of the liner ply or plies is to slide the vacuum deckle or deckles out or in. The adjustable tube is marked in inches for convenience.

There may be some question about operating difficulties that a vacuum deckle might cause. It might be suggested that if a ragged or uneven edge were produced on the ply of the sheet being deckled drier breaks would result. However, this has not been the case, because in actual operation the vacuum deckle produces a smoothly deckled edge. It might also be suggested that the part of the sheet going over the driers with one or more plies removed would get overdry and cause breaks. This has not been the case in actual operation and consideration of the fact that the lighter and thinner portion of the sheet will not hug the driers quite as well supports this finding. Moisture tests of finished paperboard show that it is not overdry.

More than one vacuum deckle may readily be used on a cylinder machine, whether for the purpose of reclaiming excess liner or for reducing the trim of the whole machine. One mill is using two, one on the liner cylinder and one on the underliner.

Acknowledgments

The vacuum deckle was invented by F. A. Dieckbrader of the Hinde and Dauch Paper Co. of Canada Ltd. British and Canadian patents have been granted and United States patents have been applied for. The Shartle Brothers Machine Co. prepared the drawing accompanying this paper.

Recovery Unit Performance in Burning Kraft Process Black Liquor*

By L. S. Wilcoxson[1] and F. G. Ely[2]

Abstract

In the investigation covered by this paper the generation of steam was given primary consideration by methods which have been employed in boiler practice, utilizing conventional fuels. These methods comprise accurate determinations of gas temperatures by means of high-velocity thermocouples at various locations in the unit and the translation of the determinations made into rates of heat absorption throughout the unit. The heat absorption rates so determined are correlated with equivalent results from other boiler installations employing different types of fuels. In order to complete the analysis of the kraft recovery unit as a whole, the chemical balance has been taken into account, the methods of determination employed in this connection being those established and accepted by previous test work.

It is a recognized fact that the fundamental purpose of a kraft process recovery unit is the recovery of chemical, and in the past the numerous investigations that have been made and reported upon have dealt with this question of chemical recoveries as the primary objective. It has been appreciated that the recovery of waste heat in the generation of steam is of importance, although considered of a secondary nature insofar as pulp mill operation is concerned and it has invariably been dealt with from this standpoint. In the present investigation the recovery of the thermal values in black liquor has been given primary consideration.

Steam is an essential requirement in the production of chemical pulp. At moderate pressures it is used in the cooking process, either by direct steaming of digesters or in indirect heaters for heating the circulated cooking liquor. At lower pressures it is needed for the concentration of black liquor in multiple effect evaporators to render it suitable for chemical recovery, in causticizing operations to accelerate chemical reaction and in numerous other plant usages. When a paper mill is operated in conjunction with the pulp mill, steam is required for the driers. In either plant, electrical or steam power demands introduce one of the major costs of production, and this combination of power and process steam requirements makes it economically attractive to generate steam at high pressures and superheat for direct use in the production of power, with exhaust or bled steam at suitable pressures going to process.

To the extent that waste heat, from the burning of wood refuse or the incineration of black liquor, can be utilized, there will be effected an equivalent saving in expenditure for other fuels, and with modern equipment the waste heat recovery system can produce steam of equal characteristics to that generated in the power boilers so that it may be delivered directly to the main header that supplies high pressure and high temperature steam to the turbine throttle.

For this discussion it will be assumed that one is familiar with the general chemical cycle of cooking and of the recovery of chemical values from the burning of black liquor, and attention will be directed to the consideration of black liquor as a fuel and to the design and performance of steam boiler equipment adapted to its use.

Black liquor, as compared to usual fuels such as natural gas, oil, or coal, or even bark and wood waste, is an extremely poor fuel on the basis by which these fuels are customarily judged. Its heating value is low, being as fired about ⅓ that of the poorest coals. Its ash or inorganic content is 3 times as great as those coals, and moisture content is nearly half the weight of the liquor introduced

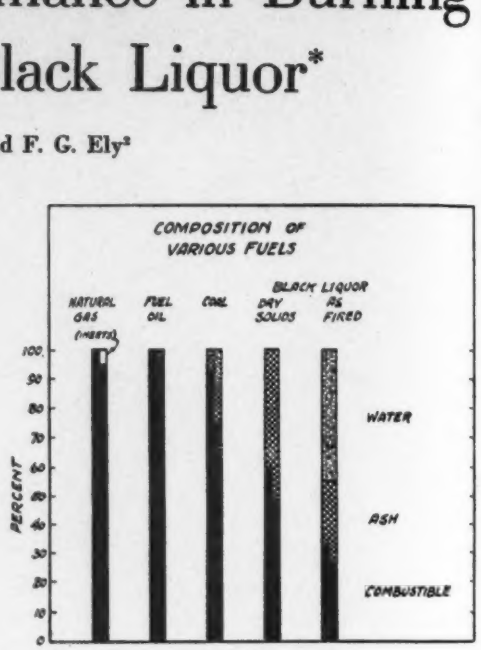


FIG. 2.

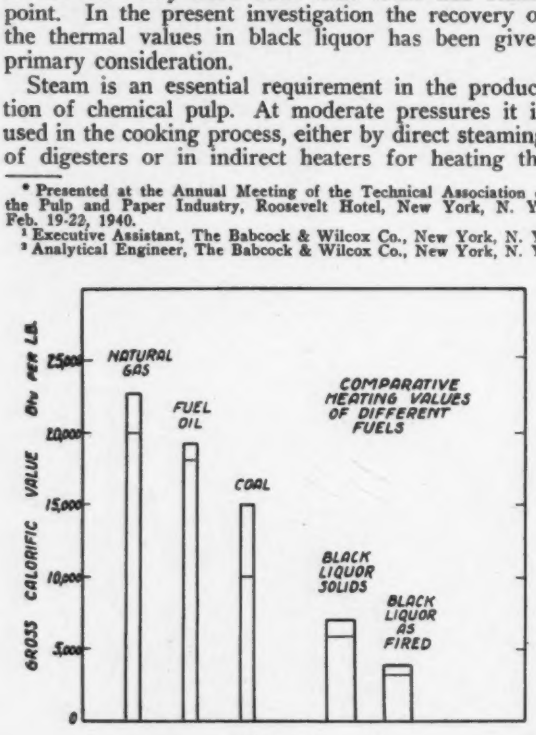


FIG. 1.

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Roosevelt Hotel, New York, N. Y., Feb. 19-22, 1940.

[1] Executive Assistant, The Babcock & Wilcox Co., New York, N. Y.

[2] Analytical Engineer, The Babcock & Wilcox Co., New York, N. Y.

into the furnace. Some idea of these comparisons is given by Figs. 1 and 2. Of the organic materials, much of the heat of combustion is necessarily utilized to satisfy the demands of moisture evaporation, the heat of fusion and sensible heat of ash, which leaves the fuel bed in the form of molten smelt, and in the kraft process to contribute heat to the endothermic reaction involved in the reduction of sodium sulphate to the useful form of sodium sulphide. In common practice, about 25 per cent of the heat of the fuel is utilized for these purposes which leaves only 75 per cent of such heat available for absorption in the generation of steam.

Nevertheless, the economic importance of chemical recovery alone has for many years justified the handling and preparation of black liquor for incineration, and the large quantities of liquor available, even at such low fuel values, makes it an important source of heat for steam production in pulp mills.

In the design of any steam generating unit many problems of practical nature must be taken into account. Provision of heating surface is, of course, a first necessity, but the characteristics of the fuel to be used frequently introduce dominant factors that dictate the arrangement of that surface not only for economical results but also for the practicability of continued operation. Simplicity and durability of construction, the proportioning of surface in the superheater, and the surface preceding the superheater, in order to produce steam of predetermined temperature, and the final absorption of low potential heat from the gases as they leave the unit all require a knowledge of the fundamentals of heat transfer, and these must be adapted by experience to the conditions of actual operation.

The effectiveness of handling the fuel in the process of combustion governs the extent to which energy is released, and failure to burn completely the combustible materials which are present results in an immediate and direct loss of heat that would otherwise be available.

During the past several years, a great many tests have been conducted on boilers of widely different sizes and arrangements and fired by different fuels, with the purpose of studying the practical influence of slagging factors from different fuels, the relative rates of heat absorption by radiant and convection surfaces, and in particular the problem of furnace and boiler design for the practical handling of ash from the fuel. This program of testing has been extended through the courtesy of Gaylord Container

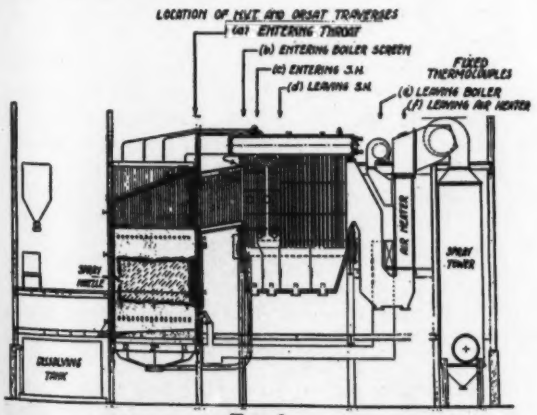


FIG. 3.

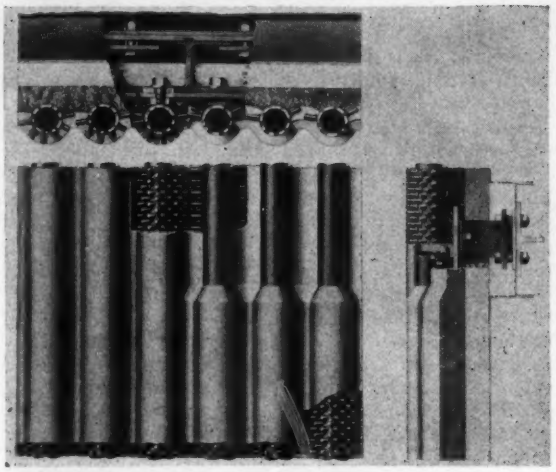


FIG. 4.

Corp. to include a recovery unit burning black liquor from the kraft process. The design of the recovery unit tested is shown in Fig. 3, and it is felt that the results of these tests and comparisons with other types of units will be of interest.

Description of Unit

The unit shown in Fig. 3 is designed for a capacity of 28,500 lb. per hr. of black liquor of 55 per cent solids concentration which rate corresponds to an equivalent production of 125 tons of pulp per day based on 3000 lb. solids per ton of pulp produced. Boiler and superheater are built for 500 lb. per sq. in. pressure and 710 deg. F. total steam temperature, the steam produced being discharged directly into the main steam header of the power plant. The unit comprises a furnace, boiler, superheater, air heater, and spray tower, and is equipped with forced and induced draft fans.

The furnace is constructed of water-cooled tubes, and the black liquor is sprayed into it by a single oscillating spray nozzle located at the center of the front wall. The form of the spray is such that an essentially flat, fan-shaped spray of relatively coarse liquor particles is projected across the furnace so as to impinge and adhere to the rear and side wall surfaces, and by the oscillation of this spray the liquor is spread over controllable areas of these furnace walls. A partial dehydration takes place in each particle of liquor in its flight across the hot furnace atmosphere and further drying and some distillation of volatiles occur following its deposition on the wall. In the course of time an accumulation of essentially dehydrated solids or char has formed of sufficient thickness to fall by its own weight to the hearth or floor of the furnace, where ignition and active combustion proceed in the path of the primary air jets located as shown in the two side and rear furnace walls. This falling of char from the walls occurs repeatedly and, in effect, continuously from the various areas of deposition, with the result that a continuous supply of fuel is delivered to the hearth, and a substantial fuel bed is formed which stabilizes the cycle of drying in the furnace and promotes reduction of the sodium sulphate that is mixed with the black liquor before firing.

Gases of combustion pass upwardly through the spraying zone and through the water-cooled throat,

from which they pass successively over the heating surfaces of boiler screen tubes, superheater tube bank, the main bank of boiler tubes, through the tubes of the air heater, and finally through the black liquor spray-tower or concentrator to the stack.

Smelt or molten ash which drips from the burning material, drains on the sloping furnace hearth toward the tap hole located at the center of the front wall and issues as a continuous stream from the water-cooled spout to fall into dissolving liquor contained in the dissolving tank shown at the front of the unit.

The fluxing and erosive action of molten alkaline smelt is well known to be destructive to uncooled refractory materials used in smelter furnace construction. It will be noted that in the design of this furnace brickwork and other such materials are completely eliminated, and all areas are fully protected by water-cooling. This water-cooled structure not only resists destructive action but also minimizes the loss of heat by radiation from exterior surfaces. The cooling tubes form a part of the boiler circulation system and contribute very materially to the gross steam generation of the unit. The lower portions of the wall tubes in the furnace which encounter the most severe action of flame and smelt are fully studded, while the upper portion of the wall tubes and the roof of the furnace are partially studded as shown in detail in Fig. 4.

An effective illustration of the durability of this stud tube construction is shown Fig. 5 A and B taken in the same furnace after 7 months, and after 31 months, respectively, of nominally continuous service without any maintenance or changes or additions of any description being made since the date the unit first went into operation.

From the standpoint of efficient combustion and high rates of heat transfer to steam generating surfaces, high initial temperatures are desirable as also is the close spacing of tubes in convection banks to give high mass flow of gases. These principles can be applied in most applications of high duty steam generators, where high grade fuels are used, especially with ash-free fuels such as gas or oil. The problem of slagging and fouling boiler surfaces, when an ash bearing fuel such as coal is used, becomes more acute as ash fusing temperatures become lower. While the low potential heat of black liquor prevents the attainment of high furnace temperatures such as attained with coal as fuel, its ash fusion temperature is compensatingly lower, and the same general features of the slagging problem exist as with many coals. Thus we have the stages of transition from molten ash in the furnace through the state of plastic or sticky ash to a final condition of dry ash particles in the gas stream, as the temperature is progressively lowered. Unfortunately, however, with black liquor as a fuel, the dry-ash condition has the peculiar tendency to adhere and cake on to solid surfaces instead of acting as a free settling dust, so that even in the cooler sections of the boiler and air heater it can accumulate to the point of restricting gas flow areas and of insulating those surfaces against transfer of heat.

FIG. 5.

A knowledge of these deterrent factors is of utmost importance in the practical design of a well-balanced unit, and some light can be thrown on the problems involved by tests revealing the heat absorption characteristics of the several sections of the unit. Such information could be readily obtained if it were feasible to build furnace and boiler sections entirely separate from one another so that the steam generation of each could be measured individually. In lieu of such a possibility, however, equivalent results can be obtained by attacking the problem from the gas side by calculation of gas weights and measurement of gas temperatures at successive stages of the unit, values of heat absorbed in successive and specified sections of the steam generating unit can be determined. This method was employed in the tests to be described.

Referring to Fig. 3, temperatures of the products of combustion were measured by traverse readings of the high velocity thermocouple *(1)*. This high velocity thermocouple is inserted into the gas stream at any desired point in the furnace, and, by an aspirator, gas is drawn across a shielded thermocouple at a sufficiently high velocity to bring the couple close to the true gas temperature, free from surrounding radiating influences. The readings were taken at (a) entrance to throat, (b) entrance to boiler screen tubes, (c) entrance to superheater, and (d) entrance to main bank of boiler generating tubes, and in addition, gas temperatures were recorded, by means of fixed thermocouples at the boiler outlet and air heater outlet. While these temperatures in themselves are of interest as showing the progressive rate of cooling of the gases in their passage through the boiler unit, they can be converted to the still more useful basis of heat absorption by means of gas specific heats, gas weights calculated from data on metered quantities of fuel burned, and gas analyses obtained from traverse sampling at the same locations of the unit at which temperatures were obtained.

For any individual section, the heat absorbed is determined by the difference between heat content of the gases entering the section and heat content of the gases leaving that section, and may be expressed by the simple equation:

$$\Delta Q = W_1C_1T_1 - W_2C_2T_2$$

where ΔQ = heat absorbed in section, B.t.u. per hr.
W_1 = weight of gas entering section, lb./hr.
W_2 = weight of gas leaving section, lb./hr.
C_1 = mean specific heat of gas mixture between 80 deg. F. and temperature T_1.
C_2 = mean specific heat of gas mixture between 80 deg. F. and temperature T_2.
T_1 = temperature of gas entering section—deg. F. above 80 F.
T_2 = temperature of gas leaving section—deg. F. above 80 F.

For the furnace section proper the heat absorption is the difference between the heat available resulting

from the combustion of the fuel and the heat in the gases at the point of entering the throat, as determined from temperatures and gas analyses obtained at that point.

The *rate* of heat absorption in terms of B.t.u. absorbed per hr. per sq. ft. may then be found by dividing the hourly heat quantity absorbed by the actual square feet of heating surface of that section. Likewise the percentage of the total available heat which is absorbed cumulatively throughout the unit may be expressed and plotted as in Fig. 6 to give a coordinated survey of the relative working rates of the different sections of heating surface.

Figure 6 shows the percentage of available heat absorbed, plotted against actual heating surface, with the different types of heating surface identified by characteristic lines according to the legend. This is a conventional way of plotting such data, being based on factors of great significance, and on the whole is very useful as a means of visualizing the relationship of the several sections for one set of test conditions. Difficulty is encountered, however, when an attempt is made to compare one boiler unit with another on the basis of actual surface. For example, in this figure the corresponding curves of one oil-fired and one pulverized-coal-fired slag-tap unit have been shown, and while it is apparent that both of these boilers are considerably larger than the recovery boiler, there is no clear indication of the rate of output of any of the three nor any direct indication of their comparative performance.

In Fig. 7 the heat absorptions of the same three units are plotted on the basis of "equivalent surface area" instead of actual surface. This simple expedient brings into the diagram a rate-of-input factor and makes it possible to correlate boilers of different size and rates of operation on a common basis, such that the intersection of each of these curves with a given ordinate line represents a definite value of B.t.u. available per hr. per sq. ft. of heating surface up to the point in question.

The equivalent surface area as a basis of comparison was developed and has been used extensively by Bailey *(2)* for furnace and boiler comparative tests. It is found by multiplying the actual heating surface by the ratio 500,000,000 divided by the total B.t.u. available for absorption on any test regardless of the size of the boiler unit or its rating. The arbitrary value of 500,000,000 B.t.u. available per hr. is a nominal figure corresponding to the input rate of many central station boiler units. Some installations operate at higher rates and many at lower rates, and while the basis could have been at either a lower or higher value, without essentially altering the scheme of comparison, this value was selected *(2)* in the hope that others applying the method would use the same basis for the sake of uniformity. A unit actually operating at 500,000,000 B.t.u. available input would naturally be plotted with the actual surfaces equal to the equivalent surfaces as the factor would be unity.

When comparing tests at different ratings on the same boiler or tests of any two or more different boilers it is apparent that at a given value of equivalent surface, the same B.t.u. available per sq. ft. of surface up to that point exists in all cases. If the percentage of heat absorbed is not the same for all units it may be due to the cleanliness or effectiveness of the surface, to the temperature difference between heat source and receiver, luminosity

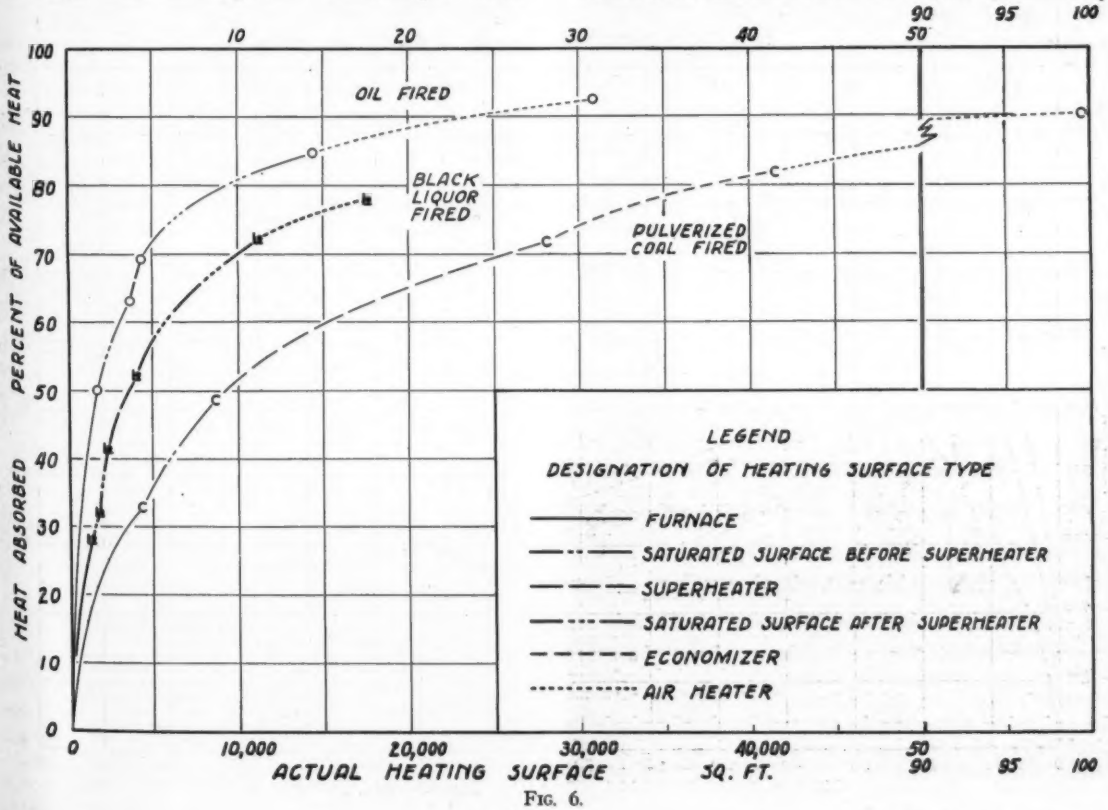


FIG. 6.

of flame, mass flow of gases, or to other factors in operation such as excess air, infiltration, etc. which modify performance results, some of which may not be known or predictable without further study or tests.

One striking difference will be noted in the three units represented in Fig. 7, namely the initial heat potential of the three fuels, as indicated by the adiabatic temperatures. Adiabatic temperature is here considered to be that temperature which would be attained if all of the heat available from the fuel were to be present as sensible heat in the products of combustion, without loss of transfer of any heat to surrounding surfaces. In other words, it is the temperature that would be developed by combustion of that fuel in a perfectly insulated and nonabsorbing furnace. This theoretical temperature, of course, cannot be reached in any actual furnace, because of the fact that heat transfer does occur during the process of combustion, and the final temperature is one corresponding to a condition of equilibrium, in which the heat transferred to surrounding surfaces is equal to that represented by depression of temperature below adiabatic. The weight of combustion products is characteristic for fuels of different analyses and may be varied by control of the quantity of air supplied. Heat available for elevating the temperature of the gases depends upon calorific value of the fuel but is diminished by any incompleteness of combustion and by the latent heat requirements of moisture evaporation or the formation of water vapor from burning hydrogen. In equivalent terms the adiabatic temperature may be expressed as B.t.u. available per lb. of combustion products.

It is clearly shown in Fig. 7 that heat absorption percentages and heat absorption rates per square foot of water-cooled furnace surface are materially lower in the recovery unit than in the oil-fired furnace. This is due in part to the presence of a heat insulating coating of smelt on the surface of the walls which retards the flow of heat to the tubes and being at a relatively high temperature, approximately that of the smelt fluid temperature. In the coal-fired unit, however, the surfaces are similarly covered by streaming slag of much higher fluid temperature than the smelt in a recovery unit and it, therefore, seems very logical to conclude from the latter comparison that the predominating difference is due to the lower temperature prevailing in the recovery furnace.

Progressing through the unit it is noted that in all three cases the rates of heat transfer diminish, but that those for the recovery unit remain considerably less and gas temperatures appreciably higher than in the case of the oil- or coal-fired boilers. Here the influence of ash deposits on the tubes of the recovery unit undoubtedly accounts for much of the lower absorption rates, but the arrangement of tubes with closer spacing for higher mass flow of gases which is possible with the cleaner fuels also

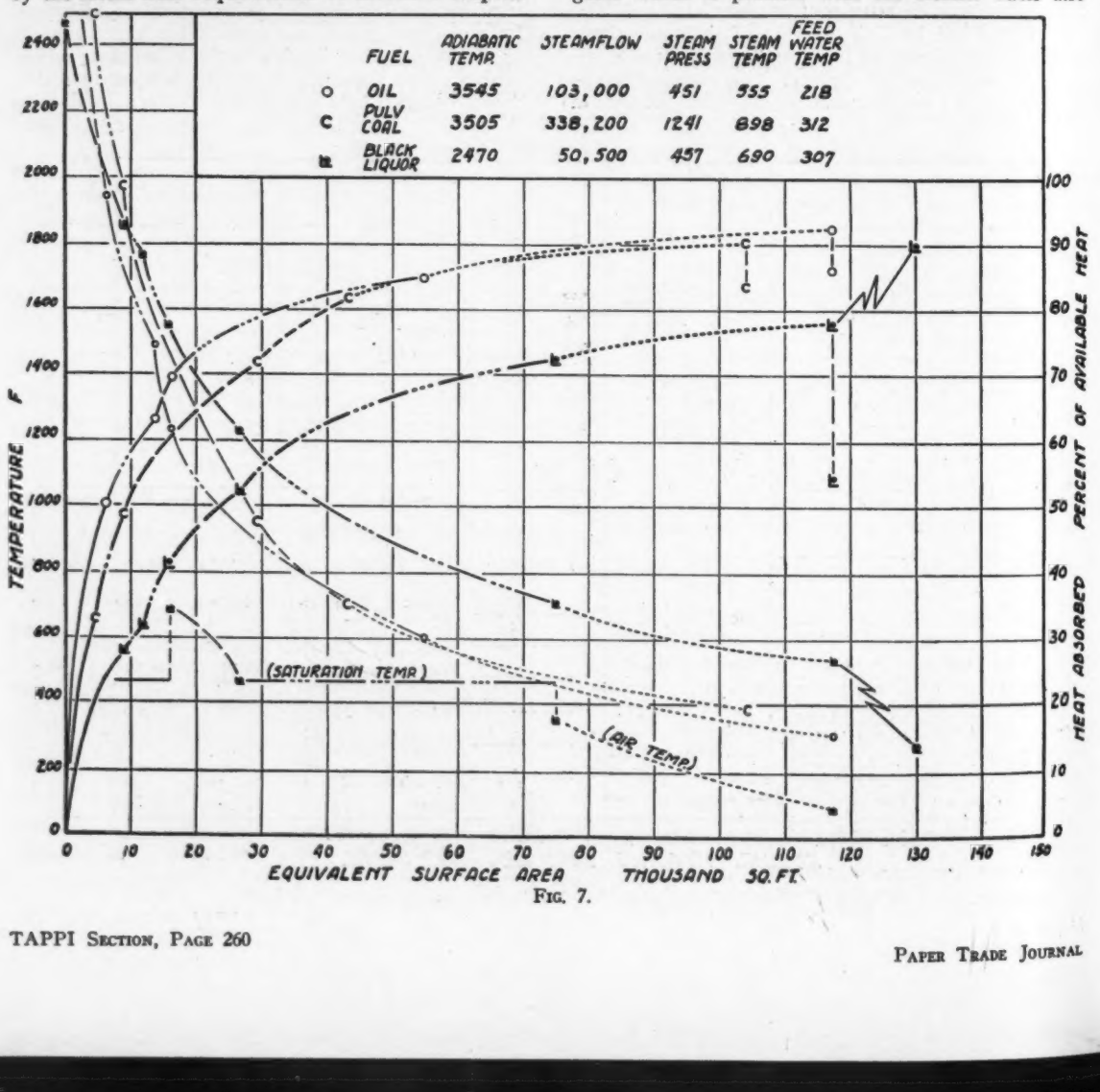


Fig. 7.

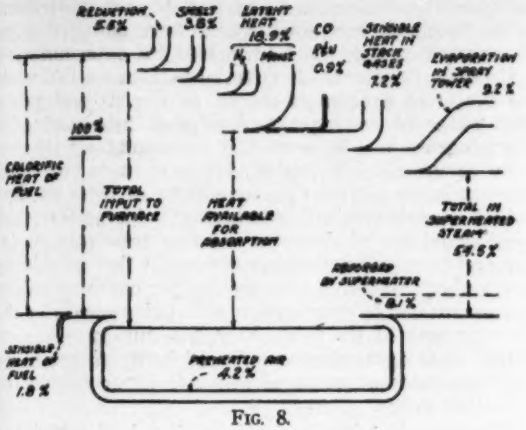


FIG. 8.

contributes to the superior performance of those units.

The heat absorbed up to the point of air-heater outlet ultimately appears in the output of superheated steam from the unit, and for the three boilers considered the percentages are: 92.5 per cent for the oil-fired unit; 90.3 per cent for the coal-fired unit; and 78.0 per cent for the liquor-fired unit. These percentage values may seem unusually high, but it must be remembered that they are based on the net heat available for absorption and not on the total gross heating value of the fuel. Overall efficiencies, based on the latter value of heat input are indicated by drop points at the ends of the several curves, and are shown to be: oil-fired 86.2 per cent; coal-fired 83.7 per cent and liquor-fired 54.5 per cent.

After leaving the air heater the gases are discharged from the induced draft fan to the inlet of a spray tower, in which partially concentrated black liquor is sprayed in intimate contact with the hot waste gases. The spray tower serves two useful purposes: (a) the recovery of particles of entrained chemical ash which are wetted and trapped by the liquor spray, and (b) the utilization of residual low potential heat of the gases in evaporating moisture from the liquor and bringing it up to final concentration suitable for firing to the furnace.

The amount of heat thus recovered is indicated by the final point on Fig. 7 of the black liquor unit, and the gas temperature at the outlet of the spray tower is likewise shown as a final point on the temperature curve, neither of which can be definitely fixed on the abscissa scale of heating surface.

Distribution of the total heat supplied to the unit may be shown in the form of an overall heat balance flow sheet as in Fig. 8. It will be noted here that the calorific heat, plus the sensible heat (above 80 deg. F.) of the hot black liquor, is taken as the 100 per cent datum upon which all other percentage values are based. Heat is also supplied in the preheated air and is additive to the other items of heat source in making up the total heat input to the furnace.

TABLE I

1	Test duration, hr.	9.5
2	Boiler	Fig. 3
3	Steam output on test, lb./hr.	50,520
4	Steam press. at superheater outlet, lb./sq. in.	457
5	Steam temp. at superheater outlet, deg. F.	690
6	Feedwater temperature, deg. F.	307
7	Air temp. leaving air heater, deg. F.	358
8	Calorific heat input from fuel, million B.t.u./hr.	98.15
9	Sensible heat (above 80 deg. F.) fuel A.F., million B.t.u./hr.	1.76
10	Heat in preheated air (above 80 deg. F.), million B.t.u./hr.	4.24
11	Total heat input to furnace (above 80 deg. F.), million B.t.u./hr.	104.15
12	Heat or reduction of Na_2SO_4, million B.t.u./hr.	5.52
13	Heat in smelt leaving furnace, million B.t.u./hr.	3.83
14	Latent heat loss fuel moist H_2, million B.t.u./hr.	18.93
15	Unburned combustible loss, million B.t.u./hr.	0.84
16	Total heat available (above 80 deg. F.), million B.t.u./hr.	75.03
17	Black liquor fired, lb./hr.	29,110
18	Concentration of bl. liq. as fired, % solids	54.7
19	Temperature of bl. liq. as fired, deg. F.	188
20	Salt cake fed (as Na_2SO_4), lb./hr.	2,040
21	Analysis of bl. liq. as fired:	
22	Carbon, %	18.65
23	Hydrogen, %	1.95
24	Oxygen + nitrogen, %	5.25
25	Sulphur, %	2.40
26	Ash, %	26.45
27	Moist., %	45.30
28	Heating value as fired, B.t.u./lb.	3,372
29	Temperature of smelt leaving furnace, deg. F.	1,550
30	Temperature of black liquor entering spraytower, deg. F.	202
31	Temp. of bl. liq. leaving spraytower, deg. F.	180
32	Concentration of bl. liq. entering spraytower, % solids	48.2
33	Concentration of bl. liq. leaving spraytower, % solids	58.2
34	Total Na_2O in black liquor to furnace, lb./hr.	4,265
35	Total Na_2O in salt cake to furnace, lb./hr.	891
36	Na_2O recovered in dissolving tank, lb./hr.	4,741
37	Na_2O recovered in dust hoppers, lb./hr.	97
38	Na_2O in gases to stack, lb./hr.	204
39	Na_2O unaccounted for including recovery by spray-tower, lb./hr.	114
40	Green liquor "reduction", %	95.1
41	Green liquor "sulphidity", %	27.7

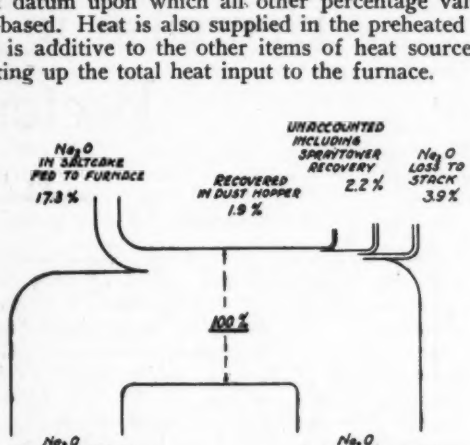

Na_2O IN SALTCAKE FED TO FURNACE 17.3%
RECOVERED IN DUST HOPPER 1.9%
UNACCOUNTED INCLUDING SPRAYTOWER RECOVERY 2.2%
Na_2O LOSS TO STACK 3.9%
100%
Na_2O IN BLACK LIQUOR FIRED 82.7%
Na_2O TO DISSOLVING TANK 92.0%

FIG. 9.

			Throat	Boiler Screen	Superheater	Boiler	Air heater	Spray tower
42	Section of unit	Furnace						
43	Flue gas analysis leaving section	CO_2, %		18.4		15.1		12.6
		O_2, %		1.0		4.8		6.7
		CO, %		0.4		0.16		0.06
44	Total combustion air leaving section, %	105	105	105	105	128	147	147
45	Total weight wet gas leaving section, lb./hr.	98,700	98,700	98,700	98,700	115,600	129,600	139,660
46	Moisture in wet gas leaving section, % by wt.	18.4	18.4	18.4	18.4	15.7	14.1	20.3
47	Adiabatic temperature, deg. F.	2,470						
48	Gas temperature leaving section, deg. F.	1,860	1,770	1,550	1,295	710	536	283
49	Available heat in gas entering sect., million B.t.u./hr.	75.03	53.89	50.93	43.82	35.67	20.63	16.39
50	Heat absorbed, individual section, million B.t.u./hr.	21.14	2.96	7.11	8.15	15.04	4.24	9.20*
51	Heat absorbed, cumulative, million B.t.u./hr.	21.14	24.10	31.21	39.36	54.40	58.64	67.84
52	Available heat absorbed, indiv. sec., %	28.1	4.0	9.5	10.8	20.0	5.6	12.2
53	Available heat absorbed, cumulative, %	28.1	32.1	41.6	52.4	72.4	78.0	90.3
54	Heat absorption, individual section, B.t.u./hr., sq. ft.	15,400	6,850	12,150	5,000	2,070	665	
55	Heat absorption, cumulative, B.t.u./hr. sq. ft.	15,400	13,400	13,100	9,800	4,820	3,320	
56	Actual heating surface, indiv. section, sq. ft.	1,370	431	585	1,629	7,257	6,360	
57	Actual heating surface, cumulative, sq. ft.	1,370	1,801	2,386	4,015	11,272	17,632	
58	Equivalent surface area (500 × 10^6 ÷ item 20), sq. ft.	9,110	12,000	15,900	26,800	75,000	117,300	
59	Av. draft leaving section, ins. water	+0.15				—3.3	—6.2	Ent. +0.8 Lv. 0.0

* Item 33 (spray tower) shows heat absorbed from gas only.

Certain items of heat disposition, namely the heat required for the reduction of sodium sulphate (Na_2SO_4) (5.5 per cent) and the heat required for smelting of the chemical (3.8 per cent) are involved in reactions which occur in the furnace during combustion and as a consequence are immediately deductible as being not available for absorption by the steam generating surfaces. In a similar category of heat unavailable for steam generation may be listed the latent heat component of the evaporation of fuel moisture and of the moisture formed by burning of hydrogen (total 18.9 per cent) as well as the unburned combustible loss shown by test to be 0.9 per cent for carbon monoxide and unaccounted for items.

After deducting these essential requirements, the net heat available for absorption is found to be 70.9 per cent of the heat from the fuel. Of this available heat the major portion is absorbed by the boiler and superheater, as shown in detail for the various sections of the unit in Fig. 7 discussed previously. Part of the heat in the gases that leave the air heater is utilized in the spray tower (9.2 per cent) for evaporation of water from partially concentrated black liquor, and the final loss of heat to the stack, at a gas temperature of 283 deg. F. is shown to be 7.2 per cent of the heat of the fuel.

While the principal subject of interest in the conductance of the test was that of thermal performance, other data were taken to cover the phase of chemical recovery. Periodic samples were taken of the black liquor fired and green liquor produced; weights of saltcake feed and dust hopper collections were obtained, and stack gases were sampled continuously throughout a 6-hr. period for determination of chemical content. A material balance on the basis of Na_2O in process is shown in Fig. 9 and while this phase of testing was somewhat subordinate in the program, it is believed that the results are reasonably accurate. Of considerable interest to the main subject is the fact that gas quantities or rates of flow which were determined independently during the stack test by means of frequent velocity traverses under favorably uniform flow conditions in the cylindrical stack check within 2 per cent the gas quantity values as determined by combustion calculations used in the development of the heat absorption survey. A similarly close agreement was found between measured and calculated percentages of water-vapor content of the stack gases.

The principal items of observed and of calculated test data are summarized in Table I.

While the general procedure of firing and burning this very interesting fuel is simple and readily understood, there are factors in its behavior that baffle description and can best be appreciated by actual observation. Colored motion pictures were taken in the furnace of this unit during operation to record some of the characteristic features of the process.

Literature Cited

(1) Mullikin, H. F., *Power* 78:565 (1934).
(2) Bailey, E. G., *Trans. A.S.M.E.* 62, no. 4 (1939).

Decrease in Felt Life Due to Bacterial Action*

By John P. Weidner[1]

Abstract

A simple method for preventing felt destruction by bacteria has been tried and found effective under mill operating conditions. The treatment is applicable to all machines, the amount of agent depending on the size of the felt. Actual increases in wet felt life were from 10 to 15 per cent and as much as 45 to 60 per cent. Top or pickup felt life was increased 30 to 100 per cent. The increases obtainable were dependent on the extent of the bacterial degradation of the felt.

In the paper industry wool is commonly known as felt or machine clothing and as such is one of the important cost items in paper manufacture. Less often wool is recalled as being a protein and a rich source of food for bacteria. On the paper machine conditions are very favorable for bacterial growth as moisture is present, the temperature is appropriate, and bacteria can reach the felt either in the water used to wash the felt, or in the wet web carried by the felt.

During the summer, felt life commonly decreases. This is the time when the temperature on the machine is most favorable to bacterial growth, and when the number of bacteria in the raw water is high because of stream conditions favorable to their growth.

With increasing closure of white water systems, the temperature of the water becomes higher which favors the growth of bacteria during the entire year. The concentration of sugars in the white water also increases which favors the growth of bacteria and especially the slime formers. These factors tend toward increased bacterial number and activity on the paper machine.

Ten years ago it was found that by treating the felt shower water, it was possible to increase felt life 15 per cent under certain conditions *(1)*. More recently *(2)*, it was shown that chlorinating felt water gave increased felt life.

Methods have been tried to treat wool before felt manufacture, but they have not been entirely satisfactory, because the processes used have modified the water absorbing power of the wool *(3)*. However, it was thought that the felts could be treated after they were made and on the paper machine.

McGrath *(4)* published a paper on the disintegration of woolen felts by bacteria. Bartsch *(5)* reviewed the causes of deterioration of woolen felts from two main viewpoints, mechanical damage during operation and damage from cleaning, bacteria,

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Roosevelt Hotel, New York, N. Y., Feb. 19-22, 1940.
[1] Member TAPPI, Director of Research, Hoberg Paper Mills Co., Green Bay, Wis.

molds, moths, etc. Remedies were suggested and numerous individual cases were given. Other articles *(6)* were published dealing with the destruction of wool in general, and papermakers' felts in particular, by such agents as moths, beetles, bacteria, and molds. Remedies and technical references were listed. Another recent paper *(7)* also mentioned bacterial attack on felts but suggested no treatment.

Stringfellow *(8)* discussed the bacteria problem with regard to the textile industry. The principal methods of control were, (1) moisture and temperature, (2) pH, and (3) chemical antiseptics. Another paper *(9)* concerning the microbiology of pulp and white water systems also mentioned the use of chlorinated phenols for the control of bacteria.

Papers by Sanborn *(10, 11)* discuss the advantage of biological control in the paper industry and the method of making sanitary surveys.

Definite methods of treating felts alone and the results that could be expected have not been available because each mill has its own particular problem, and because no universally applicable method has been advanced and tested. The method described in this paper is applicable to all felts on the paper machine.

Three types of materials were tried as treating agents, namely Dowicides[2] *B, C,* and *G*. These are chlorinated and phenylated phenols. A definite amount of these materials, either 2 or 4 lb., was dissolved in 50 gal. of water and this solution was thrown onto the felts at the entering side of the press. At the end of the weekly washup, the felt section was turned over slowly and the solution was thrown on in such a manner that a pool of liquid formed behind the press and thoroughly saturated both felts.

It was proposed to try first, one application each week at the shutdown, and more frequently, if necessary, while the machine was down during the week.

The necessity for some kind of treatment to reduce felt destruction by bacteria became apparent in the mill during the first part of 1939. Decreased felt life was seen as frequent very short life felts, shorter individual felt life, and felt damage readily apparent such as thin spots and holes in the wet felts and holes and cracks or breaks in the pickup felts. The extent of the damage for pickup felts on one machine was a decrease in life from an average of 600 hr. to 190 to 500 hr., and on a wet felt on another machine from 160 hr. to as low as 80 to 100 hours. The presence of bacteria was established by microscopic viewing of felt fibers and water extracts as well as by incubation of pieces of felt thought to be diseased.

In order that the data obtained may be more fully interpreted, the machines are described, as follows:

1*B*—Fourdrinier, single press machine.
2*B*—Yankee Fourdrinier, one pickup felt and one wet felt.
2*A*—Yankee Fourdrinier, one felt, wet felt type serving as a pickup felt.
3*A*—Yankee Fourdrinier, one pickup felt and one wet felt.
4*A*—Yankee Fourdrinier, one pickup felt and one wet felt.
5*A*—Fourdrinier, one felt, wet felt type serving as a pickup felt.

The product manufactured was toilet tissue, nap-

[2] Dow Chemical Co., Midland, Mich. One similar material may be obtained from Monsanto Chemical Co., St. Louis, Mo.

TABLE I—FELT LIFE DATA, BEFORE, DURING AND AFTER TREATMENTS

	Wet Felts						Top Felts		
No Treatment	5A	2A	3A	4A	1B	2B	3A	4A	2B
Machine	131	204	168	219	200	187	587	612	187
January	157	209	355	286	200	145	...	...	509
	190	238	...	...	200	249	...	...	...
	134	195	...	...	257	...	502	...	...
February	151	185	265	210	264	213	...	496	...
	104	132	...	258	...	205	...	...	...
	129	127	...	...	...	...	...	...	...
	140	205	...	...	...	...	...	...	...
March	88	232	236	131	343	217	448	462	373
	81	234	267	189	240	184	...	...	391
	80	179	293	...	...	207	...	...	...
	151	...	...	...	...	...	...	...	...
	119	...	...	...	...	...	...	...	...
April	117	116	182	204	303	253	491	...	...
	105	115	...	220	353	...	...	420	...
	108	173	...	191	...	...	...	...	...
	107	...	...	...	...	...	...	...	...
ave.	123	182	251	212	262	207	507	497	365
Treated	2-lb. C	2-lb. C	4-lb. C	4-lb. C	none	4-lb. C	4-lb. C	4-lb. C	4-lb. C
	175	269	296	320	...	275	...	...	562
May	200	208	297	...	250	262	533	520	565
	181	232	...	...	338	201	...	...	...
	164	226	...	...	...	203	...	...	...
				4-lb. C ave.	236			4-lb. C ave.	563
June	194	160	344	342	287	2-lb. G	465	559	2-lb. G
	174	168	380	266	213	221	...	...	780
	...	152	...	...	...	4-lb. C	...	ave. 539	...
July	156	205	...	217	289	381	329	4-lb. G	...
	185	200	...	...	294	135	...	660	...
					...	146	...	...	...
ave. 4-lb. C	178	202	324	...	...	...	427	...	...
	2-lb. G	2-lb. G	4-lb. G	...	...	...	4-lb. B	4-lb. B	...
August	208	188	...	196	269	205	444	592	...
	181	201	...	197	269	150	...	...	...
	160	185	...	216	...	167	...	...	...
September	170	188	390	225	382	167	490	595	672
	...	...	403	227	...	...	...	...	...
ave.	179	191	397	246	...	181	467	...	726
No Treatment	171	164	4-lb. G	4-lb. G	263	...	4-lb. G	...	...
	185	188	397	260	...	...	471	...	...
October	174	180	...	185	151	...	409	573	...
	180	120	...	276	151	...	...	...	...
	140	138	398	244	290	...	...	...	...
	116	...	...	...	387	...	...	...	...
November	170	247	...	...	208	...	398	614	...
	180	146	...	...	...	...	...	...	...
	172	207	...	...	...	...	...	...	...
	165	285	...	...	...	...	...	...	...
ave.	165	175	398	241	274	...	426	593	...

kin, and the like. The machine pH was ordinarily slightly more than pH 7.

Furthermore, two sources of water were available. River water was used in the sulphite pulp mill and on the machines designated as 1*B* and 2*B*, while both river water and deep well water were used on Machine 2*A*, etc. After the startup, the *A* machines were operated on well water. Thus the pulp and two paper machines were open to infection by river water, while four machines were open to infection by the pulp at all times. All river water was treated with chlorine and ammonia. Machines with both water sources showed a similar action due to bacteria. (Table I)

Machine 1*B* felts were not treated. Data on this machine indicate that there was no great difference in average felt life during the period under investigation, but that the individual felt life was quite erratic at 151 to 387 hours.

TABLE II.—WET FELT LIFE

Machine	Before	Dow C	Dow G	Dow B	After
2*A*	182	202	191	...	175
3*A*	251	324	397	398	...
4*A*	212	246	241	241	...
5*A*	123	178	179	...	165
2*B*	207	236	181*	...	...

2*A* and 5*A*—2 lb. for one felt.
Other machines—4 lb. for two felts.
* 2*B*—2 lb. Dow G for two felts.

The first agent tried was Dowicide *C*. Two lb. were used on the single felt machines and 4 lb. on machines having two felts. There was an immediate increase in all felt life. The data gathered concerning wet felt life are given in Table II. Each figure given is an average.

As far as wet felt life is concerned, all actual running life increased, and the increase was very nearly the same, no matter which agent was used. At the time wet felt life for Machine 2*B* decreased 20 hr., using only 2 lb. of Dowicide *G* for two felts, pickup felt life increased greatly, Table III. Part of this decrease may be due to the reduced amount of agent, but a large share is due to the greater wear with the more worn top felt.

A similar comparison for top or pickup felt life is given in Table III. In this case the figures are averages for from 4 to 5 felts. The increase in life

TABLE III.—PICKUP FELT LIFE

Machine	Before	Dow C	Dow G	Dow B
3*A*	507	426	426	467
4*A*	497	539	660	593
2*B*	365	563	726*	...

4 lb. of agent for two felts.
* 2 lb. of Dow *G* only.

for Machines 4*A* and 2*B* is at once apparent, and 2 lb. of Dowicide *G* appears as effective as 4 lb. of it or any other agent used. While top felt life is not as long on Machine 3*A*, it can be seen that wet felt life increased 40 hours. A quality of change was largely responsible for the decrease. The actual value of such treatment can be seen from these data as each felt is valued at $400 to $500.

It is hard to differentiate between mechanical and bacterial effect in the decrease in felt life, but when-

TABLE IV.—INCREASE IN LIFE

Wet Felts			Pickup Felts		
Machine	Agent	Increase, %	Machine	Agent	Increase, %
2*A*	C	11	3*A*	C	— 19
	G	0		G	— 19
	G	5			
3*A*	C	29		B	— 8
	G	55	4*A*	C	8
	G	58			
	B	58		G	33
4*A*	C	16		B	19
	G	14	2*B*	C	54
	B	14		G	102
5*A*	C	45			
	G	46			
2*B*	C	14			
	G	—10			

TABLE V

Machine	Wet felts With	Wet felts Without
2*A*	202	120-200
3*A*	390	381-390
4*A*	241	191-202
5*A*	179	147-198

ever a mechanical cause for decreased life was known, that felt was omitted from the data.

Dowicide *G* or *B* were much more effective than Dowicide *C* for treating top felts. Two lb. of Dowicide *G* were more effective than 4 lb. of Dowicide *C* on Machine 2*B*. The effectiveness of these aids is indicated in Table IV.

It can be seen that an increase in wet felt life of 10 to 15 per cent and as high as 40 to 60 per cent can be obtained by treating the felts with an antiseptic once a week under various conditions. For top or pickup felts, the increase may be 20 to 100 per cent depending on actual mill conditions. These increases were accomplished during the months of May through November as compared to averages for no treatment from January through April. Hence, the gains were accomplished during the most favorable months of the year for bacterial activity.

In November and December, treatments were discontinued for one reason, to see how necessary and how effective treatments were during the winter months. At the present time there has been no reoccurance of the holes and cracks evidencing serious bacterial destruction. However, some felts have shown short life. In Table V a comparison is made between the average life during the treating period and after this period. Erratic felt life was soon apparent, i. e., some felts had a very short life which was similar to the behavior before the treatments were made.

A simple and effective method for preventing felt destruction has been tried under mill operating conditions. The treatment is easily applicable to all machines, the amount depending on the size of the felt. Actual amounts used on felts for a machine having 132-in. wire were 2 lb. for one felt and 2 to 4 lb. for two felts. Dowicide *G* was found to be the most effective of the agents tried.

Actual running life was increased for individual felts. Average felt life was increased also by eliminating short-life felts due to bacterial destruction. Wet felt life was increased from 10 to 15 per cent and as much as 45 to 60 per cent. Top or pickup felt life was increased from 30 to 100 per cent. These increases were obtained during the months of May through November as compared to felt life from January through April.

At no time during treatment was a felt lost by bacterial destruction. Whenever there was visible evidence of bacterial action, this treatment absolutely stopped the destruction. After treatments were discontinued bacterial activity in the felts was again apparent.

Literature Cited

(1) Booth Chemical Co. Reports. 1928, 1930. From reference *(4)*.
(2) Slime in paper Mills, Wallace and Tiernan, Research Pub. no. 327.
(3) Burgess, R., *J. Textile Inst.*, 25:T391-400 (1934).
(4) McGrath, L., *Paper Ind.* 18, no. 4:281-4 (1936).
(5) Bartsch, J., *Verein Zellstoff-Papier-Chem.-Ing.* Jahresbericht, 63-70 (1934).
(6) Buccar, M., *Papeterie* 60, no. 19; 910, 912, 915-6; no. 20:950, 953-4 (Oct. 10, 25, 1938).
(7) Mendrzyk, H., *Papier-Fabr.* 35, no. 16:125-8 (April 16, 1937).
(8) Stringfellow, W. A., *Am. Dyestuff Reptr.* 28, no. 15:388-90 (July 24, 1939).
(9) Nason, H. K. and Schumard, R. S. "Microbiology of pulp and white water systems," Research Dept., Monsanto Chemical Co., St. Louis, Mo.
(10) Sanborn, J. R., *Paper Trade J.* 106, no. 11:46-8 (March 17, 1938).
(11) Sanborn, J. R., *Paper Trade J.* 109, no. 11:79-80 (Sept. 14, 1939).

Imports of Paper and Paper Making Stock

Giving Manifests of New York, Boston, Philadelphia and Other Ports of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard, Wallboard, Cigarette Papers, Sulphite, Kraft and Ground Wood Pulp.

Effective September 30, 1939, under Treasury Decision 49,970, all publications, exchanges and trade associations, were denied access to import manifests at the New York Customs House. The Paper Trade Journal and other interested parties have vigorously protested this ruling, and as soon as the order of the Treasury Department is modified or rescinded, full publication of all manifests will be resumed in these columns. In the interim, the Paper Trade Journal is making every possible effort to gather all available information from manifests, at various outside sources.

NEW YORK IMPORTS

WEEK ENDING MAY 3, 1940

SUMMARY

Cigarette paper .....1,851 cs.
Newsprint .....59 bls., 5,753 rolls
Wrapping paper .....20 cs., 234 bls.
Filter paper .....65 bls.
Drawing paper .....18 cs.
Surface coated paper .....68 cs.
Painted paper .....23 bls.
Writing paper .....1 cs.
Miscellaneous paper .....47 cs., 100 rolls

CIGARETTE PAPER

De Manduit Paper Corp., ——, Bordeaux, 389 cs.
American Tobacco Co., ——, Bordeaux, 370 cs.
Wedeman & Godknecht, ——, Havre, 136 cs.
Champagne Paper Corp., ——, Havre, 525 cs.
De Manduit Paper Corp., ——, Havre, 265 cs.
Clark Fruitier, ——, Havre, 86 cs.
Braunstein Freres, ——, Havre, 80 cs.

NEWSPRINT

Karr Ellis Co., ——, Cornerbrook, 1,869 rolls.
——, ——, Cornerbrook, 59 bls., 3,820 rolls.
Bowater Paper Co., Inc., ——, Cornerbrook, 64 rolls.

WRAPPING PAPER

——, ——, Rotterdam, 234 bls.
——, ——, Rotterdam, 20 cs., (transparent).

FILTER PAPER

A. Giese & Son, ——, Bordeaux, 65 bls.

DRAWING PAPER

Steiner Paper Corp., ——, Havre, 17 cs.
Lunham & Reeve, Inc., ——, Havre, 1 cs.

SURFACE COATED PAPER

Gevaert Co., of America, ——, Antwerp, 68 cs.

PAINTING PAPER

American Express Co., ——, Havre, 9 bls.
Hudson F'd'g. Co., ——, Havre, 14 bls.

WRITING PAPER

American Express Co., ——, Havre, 1 cs.

MISCELLANEOUS PAPER

F. C. Strype, ——, Bordeaux, 100 rolls.
T. N. Fairbanks Co., ——, Havre, 1 cs.
——, ——, Havre, 42 cs.
American Express Co., ——, Havre, 4 cs.

RAGS, BAGGINGS

Castle & Overton, Inc., ——, Bordeaux, 92 bls. cotton rags.
Bank of The Manhattan Co., ——, Bordeaux, 122 bls. old rags.
——, ——, Bordeaux, 839 bls. old cotton rags.
J. T. Flannery, *Exochorda*, Alexandria, 130 bls. old bagging.
Castle & Overton, Inc., *Exochorda*, Alexandria, 81 bls. old cotton rags.
E. J. Keller Co., Inc., *Exochorda*, Alexandria, 72 bls. old bagging.
Chase National Bank, ——, Havre, 125 bls. waste bagging.
Continental Bank Trust Co., ——, Havre, 56 bls. new rags, 65 bls. old rags.
Bank of The Manhattan Co., ——, Havre, 233 bls. old rags.

OLD ROPE

——, *Talamanca*, Cristobal, 6 bls.

GLUESTOCK

Rex & Reynolds Co., ——, Marseilles, 50 drums.

CASEIN

American British Chemical Supplies, ——, Buenos Ayres, 417 bags, 25,020 kilos.

WOOD PULP

Cellulose Sales Co., Inc., ——, Malmo, 1,495 bls. dry sulphite pulp, 262 tons; 286 bls. air dry sulphite, 57 tons; 716 bls. air dry sulphate, 143 tons.
Bulkley Dunton Pulp Co., Inc., ——, Malmo, 6,000 bls. dry sulphite, 1,000 tons; 2,000 bls. air dry sulphate, 400 tons.

PORTLAND IMPORTS

WEEK ENDING MAY 3, 1940

J. Anderson & Co., ——, Malmo, 11,328 bls. kraft sulphate pulp, 1,888 tons; 5,899 bls. dry sulphate pulp, 1,046 tons.
Cellulose Sales Co., Inc., ——, Malmo, 5,736 bls. kraft sulphate pulp, 956 tons.

BOSTON IMPORTS

WEEK ENDING MAY 3, 1940

E. Butterworth & Co., Inc., ——, Rotterdam, 283 bls. paper stock.
American Paper Tube Co., ——, Antwerp, 352 rolls wrapping paper.
Elliott Addressing Machine Co., ——, Yokohama, 21 cs. paper.

PHILADELPHIA IMPORTS

WEEK ENDING MAY 3, 1940

Schwartz & Co., ——, Rotterdam, 16 rolls, 13 cs. lamp shade board.

NORFOLK IMPORTS

WEEK ENDING MAY 3, 1940

Irving Trust Co., ——, Antwerp, 141 bls. old bagging.
Dixie Jute Bagging Corp., ——, Antwerp, 40 bls. old bagging.

LOS ANGELES IMPORTS

WEEK ENDING MAY 3, 1940

——, *Ecuador*, Falun, 162 bls. newsprint paper.
——, *Ecuador*, Kuusankoski, 2,937 rolls newsprint paper.
——, *Ecuador*, Norrkoping, 1,088 rolls newsprint paper.
——, *Kiyokawa Maru*, Kobe, 1 cs. writing paper.
——, *Yamazuki Maru*, Shanghai, 66 tons paper stock.

Paper Trade Plan Golf Tournament

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., May 6, 1940—Nate Saxe, president of the Paper Trade Association of Philadelphia has sent out the following letter this past week to all the members of the Association:

"For many years Philadelphia has been without a representative golf tournament.

"Wednesday, May 15th, has been selected by the Philadelphia Paper and Cordage Association, Inc., for a golf tournament and dinner that can be made truly a Paper Trade Tournament if the officials of the paper companies as well as regular Paper and Cordage Association members come out.

"Your Board of Governors has heartily endorsed this TOURNAMENT and takes this means of urging all golf playing officials to compete for this 'President Cup' and *stay for dinner* at the Philadelphia Cricket Club.

"Invite your paper mill friends too and we are sure the expenses will be very moderate. Further notices of the date, etc., will come out later.

"Please cooperate within your company to establish again a real Paper Trade Golf Tournament once a year."

With Butler Smythe as host, this tournament at picturesque Philadelphia Cricket Club, Flourtown, Pa., will be outstanding in golf annals, and is the first time in the history of the Philadelphia Paper and Cordage Association that a President's Cup will be awarded. The cup is the gift of W. C. Hamilton & Sons, who will have a representative group present. Associated with Butler Smythe on the golf committee are Arthur B. Sherrill, Frank O'Neill, Jr., E. L. Richards, F. W. Hastings, Gordon Smith and Edward Weihenmayer, Jr.

Thermionic pH Recorder

The Cambridge thermionic pH recorder for the control of pulp and waste paper, water purification and the control of feed water, etc., for power stations is described in List 910T, issued by the Cambridge Instrument Company, 3732 Grand Central Terminal, New York. The recorder is of rugged construction and provides a continuous record of pH with laboratory accuracy. The installation consists of two units, the electrode assembly and the combined thermionic potentiometer-recorder. A copy of the publication may be obtained from the company on request.

A. M. Burr Gets New Line

BOSTON, Mass., May 8, 1940—Arthur M. Burr, for twenty-five years representative of the Cayuga Linen and Cotton Mills, Auburn, N. Y., manufacturers of polished cotton twine, which have liquidated, has become agent for the A. W. Archer Company, Inc., New York, mill representatives, handling cotton twines, cords and cordage. Mr. Burr still continues with the Badger Paper Mills, Inc., Peshtigo, Wis.

R. B. Whittemore Goes to York

R. B. Whittemore, heretofore plant manager of the mill of the Certainteed Products Corporation at Niagara Falls, N. Y., has been appointed manager of company mill at York, Pa., to succeed George W. Watson, recently retired as plant manager, after an association of 28 years with the York Division.

Peninsular Paper Co.

The oldest industrial plant in Ypsilanti, the Peninsular Paper Company, began operation in 1867 under the directorship of Lambert A. Barnes, Isaac N. Conklin, John W. Van Cleve, William H. Myers and Samuel Barnard.

Shortly after its inception D. L. Quirk, Sr., who had been one of the original stockholders, assumed the presidency which, in 1914 was vested in his son, D. L. Quirk, Jr., wherein it now resides.

In its early years of operation the mills supplied the *Chicago Tribune* with paper. It was part of the sales agreement that two mills should be operated, one on each side of the Huron River to better guarantee necessary production, says the *Ypsilanti Daily Press* in a recent issue.

The practice of operating two mills was abandoned, however, in 1898 when a fire destroyed the north mill and the entire plant was rebuilt on the present site.

The original plan of manufacturing paper for news printing plants exclusively was soon abandoned and production was expanded to include highly specialized papers which demand quality in preference to quantity.

Growth of the plant since about 1920 has been principally through better quality rather than through greater quantity and improvements are constantly being made in machinery rather than in the enlargement of the plant itself.

Present officers of the organization are President D. L. Quirk, Jr., Junius E. Beal, vice president, E. C. Cornwell, who has been occupied in paper mill work his entire life, operating mills along the Huron River for many years, secretary and treasurer. D. T. Quirk has been associated with the company since 1924 and is now sales and plant manager. Joseph Ely, manufacturing superintendent, came with the company in 1912.

New "Quick Selector" Catalog

The new 64-page enlarged April 1940 edition of the "Quick Selector" catalog has just been announced by the Westinghouse Electric and Manufacturing Company. This is the second edition of this new handy catalog that is published twice yearly, and prepared especially to facilitate the user of electrical equipment in selecting the correct apparatus for any motor, lighting, or feeder circuit.

Safety switches, No-Fuse breakers, multibreakers, distribution panelboards, motors, and motor controls are featured in successive sections of the catalog. A time-saving section index is a part of the front cover.

Four pages of general application data contain NEC recommended installation practices, simplified and tabulated for easy reference. Most sections contain tips on mounting and connecting the apparatus; all are profusely illustrated. Electrical ratings, physical dimensions, and individual circuit diagrams for the various devices are included. Accurate and up-to-the-minute price information is given for each item.

Copies of the new "Quick Selector" catalog 30-000 may be obtained from department 7-N-20, Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa.

New York Paper and Pulp Market Review

Pulp Market Strong With Contract Prices Firm — Lower Prices On Some Rags—No. 2 Roofing Rags A Little Higher—Waste Paper Market Strong With Higher Prices On Old Kraft and No. 1 Mixed Paper.

Office of the PAPER TRADE JOURNAL,
Wednesday, May 8, 1940.

Sales volume in the wholesale paper market continues at a good level, with the average of sales about 4 per cent above the level of business at this date last year. Reports from many manufacturers' representatives, jobbers, and general paper merchants, indicate the expectation of a higher volume of business during the first half of the current year.

The index of general business activity for the week ended April 27, dropped slightly to 93.1 per cent, from 93.2 per cent for the preceding week, compared with 86.7 per cent for the like period last year.

Paper production of 230 mills for the week ended April 27, was estimated at 91.1 per cent, compared with 82.9 per cent for 1939, with 70.4 per cent for 1938, with 89.5 per cent for 1937, and with 83.1 per cent for the corresponding week in 1936.

Paper board production for the week ended April 27 was 75.0 per cent, compared with 68.0 per cent for 1939, with 57.0 per cent for 1938, with 87.0 per cent for 1937, and with 68.0 per cent for the like period in 1936.

While sales volume is being maintained at a relatively good level in many grades of paper this week, the major activity is reported in kraft paper and in paper board. Unfilled orders are reported by manufacturers in both these divisions of the industry as substantial and increasing. As a whole, the paper market is firm and the trend in both volume and prices appears upward. No important change from prevailing representative quoted market prices has been reported at this date.

Mechanical Pulp

The mechanical pulp market is in a strong position. Prices are firm and no important change from prevailing market quotations has been reported this week.

Chemical Pulp

No important change has been reported in the chemical pulp market during the current week. Prices are firm and unchanged. The latest government report issued on May 8, states that March imports of wood pulp from Sweden totaled 17,422 tons; from Norway, 484 tons, and from Canada, 55,288 tons. No wood pulp was shipped from Finland in March.

Rags

The domestic rag market is moderately active with the trade expecting a stronger market in view of the critical situation in wood pulp. The important changes during the week were lower quotations on No. 1 silesias, currently quoted at from 4.25 to 4.75, and on blue overall, currently quoted at 4.25 to 4.50. No. 2 roofing rags are up a few cents to .82 to .87½.

Old Rope and Bagging

No important change has been reported in the old rope market this week. Prices are unchanged.

Mill buying of old bagging continues slow. No change in prices has been reported to date.

Old Waste Paper

The paper stock market continues to show a strong tone, with prices very firm and sharply higher on some grades. Solid flat book has advanced and is currently quoted at from 1.05 to 1.10; old kraft, machine compressed bales, is up sharply and currently quoted at from 1.50 to 1.75; strictly folded news is up to .55 to .60; corrugated up to .55, and No. 1 mixed paper has been advanced and is currently quoted at from .40 to .45.

Twine

No important change has been reported in the twine market this week. Prices are firm on all grades of hard and soft fiber twines.

Scott Sales at New High

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., May 6, 1940—The spring retail sales conference of Scott Paper Company, Chester, Pa., was held during the week at Hotel Warwick. William F. Mohan, first vice president; D. A. Prouty, retail sales manager; H. C. Pardee, advertising manager and others addressed the meeting on the company's new sales promotion, merchandising and advertising plans for the coming months.

William Bailey, Buffalo divisional manager, acted as chairman of the meeting. Retail divisional sales managers from the Buffalo and Philadelphia attended. The meeting followed the recent announcement by the company that net sales during the first quarter of the year totaled $5,260,281, the largest quarter sales in the company's history.

Union Bag Signs Contract

Contracts with the International Brotherhood of Papermakers and the International Brotherhood of Pulp, Sulphite and Paper Mill Workers have been signed by union representatives and officers of the Union Bag and Paper Corporation. Agreement was reached with these American Federation of Labor affiliates at a conference in Savannah on May 4, the corporation announced in denying rumors of labor trouble at its Savannah plant.

International Raises Pay

A flat wage increase of 2 cents an hour to all hourly paid workers in the International Paper Company's mill at Gatineau went into effect on May 2, according to a report from Ottawa, Canada. Approximately 800 men will be affected and the mill payroll will be increased by $35,000 to $40,000 a year. A similar increase is scheduled for two subsidiary plants in the district and may apply to other mills in Canada

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, May 8, 1940.

BLANC FIXE—Quotations on blanc fixe are firm and conform to prevailing quotations. The pulp is currently quoted at $35 per ton, in barrels, at works. The powder is quoted at $50 per ton, f.o.b., works.

BLEACHING POWDER—Prices on bleaching powder are firm, with demand reported moderate. Quotations unchanged. Bleaching powder is currently quoted at $2 per 100 pounds, in drums, at works.

CASEIN—Quotations on casein are a little lower for the current week. Standard domestic casein, 20-30 mesh, is currently quoted at from 9½ to 10½ cents per pound; 80-100 mesh, at from 10 to 11 cents per pound; all prices in bags, car lots. Argentina casein is currently quoted at from 10 to 10½ cents per pound; French casein as 15 cents per pound.

CAUSTIC SODA—Prices on caustic soda are firm and conform to prevailing market levels. Demand steady. Solid caustic soda is currently quoted at $2.30 per 100 pounds; flake and ground at $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Quotations on china clay are firm and continue unchanged at prevailing market levels. Domestic filler clay is currently quoted at from $7 to $15 per ton; coating clay at from $11 to $22 per ton, at mines. Imported clay is quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Prices on chlorine are firm and continue unchanged for the week. Demand moderate. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market is reported firm with quotations on some grades a little higher for this week. "G" gum rosin is currently quoted at $4.63 per 280 pounds, gross weight, in barrels, Savannah. "FF" wood rosin is currently quoted at $4.60 per 280 pounds, gross weight, in barrels, New York. Seventy per cent gum rosin size is quoted at $2.63 per 100 pounds, f.o.b., shipping point.

SALT CAKE—Prices on salt cake are firm under a steady demand. Prices continue unchanged and nominal. Domestic salt cake is currently quoted at $17 per ton, in bulk; chrome salt cake at $16 per ton. All prices in car lots, f.o.b., shipping point. Imported salt cake currently quoted at $20 per ton is nominal.

SODA ASH—Quotations on soda ash are firm and continue unchanged at prevailing market levels. Demand is reported as moderate. Quotations on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch are unchanged for the current week. Pearl is currently quoted at $2.80 per 100 pounds; powdered starch at $2.90 per 100 pounds; all prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm with shipments in moderate volume. The commercial grades are currently quoted at $1.15 per 100 pounds; iron free at $1.60 per 100 pounds, in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and continue unchanged at prevailing market levels. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are offered at $19 per ton.

TALC—Quotations on talc are firm under a moderate demand and are unchanged at prevailing market prices. Domestic talc is currently quoted at from $15 to $18 per ton, Eastern mines. Imported talc is quoted at from $23 to $45 per ton.

MARKET QUOTATIONS

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$30.00	@	—
Sheets	58.00	"	—
Kraft—per cwt.—Delivered Zone A			
Northern, Extra Quality	$5.00	@	$5.50
Superstandard	4.62½	"	5.00
Northern Standard Wrapping	4.37½	"	4.62½
Standard Wrapping	4.25	"	—
Tissues—Per Ream—Carlots			
White No. 1	.92½	@	—
White No. 1 M. G.	.90	"	—
White No. 1½	.70	"	—
White No. 2	.65	"	—
Anti-Tarnish M. G.	.80	"	—
Colored	.87½	"	—
Kraft	.80	"	—
Manila	.65	"	—
Unbl. Toilet, 1 M.	3.50	"	—
Bleached Toilet	5.26	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	1.95	@	—
Bleached, Jr.	3.20	"	—
Manila—per cwt.—C. l. l. a.			
No. 1 Jute	8.25	@	10.25
No. 1 Manila Wrapping, 35 lb.	5.25	"	—
No. 2 Manila Wrapping, 35 lb.	5.00	"	—
Boards, per ton—			
News	35.00	@	40.00
Chip	35.00	"	40.00
Sgl. Mla. Ll. Chip	55.00	"	57.00
White Pat. Coated	67.00	"	70.00
Kraft Liners	55.00	"	—
Binders Boards	73.00	"	80.00

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—
White, Assorted Items,
Delivered in Zone 1:

	Bonds		Ledgers	
100% Rag Ext. No. 1	$39.10 @	$46.00	$40.25 @	$47.25
100% Rag	31.05 "	36.50	32.20 "	37.75
85% Rag	.... "	....	29.90 "	35.00
75% Rag	23.60 "	27.75	24.75 "	29.00
65% Rag	.... "	....	21.65 "	26.25
50% Rag	17.55 "	21.50	18.70 "	22.75
25% Rag	14.65 "	17.75	15.80 "	19.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—
White, Assorted Items,
Delivered in Zone 1:

	Bonds		Ledgers	
No. 1	$8.95 @	$11.00	$10.10 @	$12.25
No. 2	8.05 "	9.75	9.25 "	11.25
No. 3	7.60 "	9.25	8.50 "	10.75
No. 4	7.30 "	9.00	8.50 "	10.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—
White, Cased Paper,

Delivered in Zone 1:

No. 1 Glossy Coated	$11.90	@	$13.50
No. 2 Glossy Coated	10.35	"	11.75
No. 3 Glossy Coated	9.55	"	11.00
No. 4 Glossy Coated	9.15	"	10.50
No. 1 Antique (watermarked)	8.35	"	9.50
No. 2 Offset	7.70	"	9.00
A Grade E. F.	7.50	"	8.75
A Grade S. & S. C.	7.75	"	9.00
B Grade E. F.	6.95	"	8.00
B Grade S. & S. C.	7.20	"	8.25
C Grade E. F.	6.65	"	7.75
C Grade S. & S. C.	6.90	"	8.00
D Grade E. F.	6.40	"	7.50
D Grade S. & S. C.	6.65	"	7.75

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	$38.00	@	44.00
Dry	38.00	"	44.00
(Delivered)			
No. 1 Domestic and Canadian	40.00	@	42.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	3.00	@	4.15
Prime Qualities—			
Easy-Bleaching Sulphite	2.75	"	3.60
Strong Unbleached Sulphite	2.75	"	3.50
(On Dock, Atlantic Ports)			
Kraft Bleached	3.37½	@	3.75
Kraft Light & Strong	2.50	"	3.60
Kraft No. 1	2.50	"	3.50
(F. o. b. Pulp Mill)			
Kraft Domestic and Canadian	2.50	"	3.00
(Delivered)			
Soda Bleached	2.90	"	—

Add 60 cents per short ton, dock charges for Albanay; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.

Shirt Cuttings—			
New White, No. 1	7.25	@	7
Silesias No. 1	4.25	"	4.75
New Unbleached	6.50	"	6.75
Blue Overall	4.25	"	4.50
Fancy	2.25	"	4.5
Washables	2.00	"	2.13
Mixed Khaki Cuttings	2.75	"	3.0
O. D. Khaki Cuttings	3.15	"	3.3

Old Rags

White, No. 1—			
Repacked	3.25	"	3.5
Miscellaneous	2.75	"	3.00
White, No. 2—			
Repacked	2.50	"	2.7
Miscellaneous	2.00	"	2.25
Thirds and Blues—			
Repacked	2.00	"	2.2
Miscellaneous	1.75	"	1.90
Roofing Rags—			
No. 1	1.10	"	1.1
No. 2	.82½	"	.87½
No. 3 (bagging)	.90	"	1.0
No. 4	.60	"	.6
No. 5A	.60	"	.6

Foreign Rags

All prices nominal

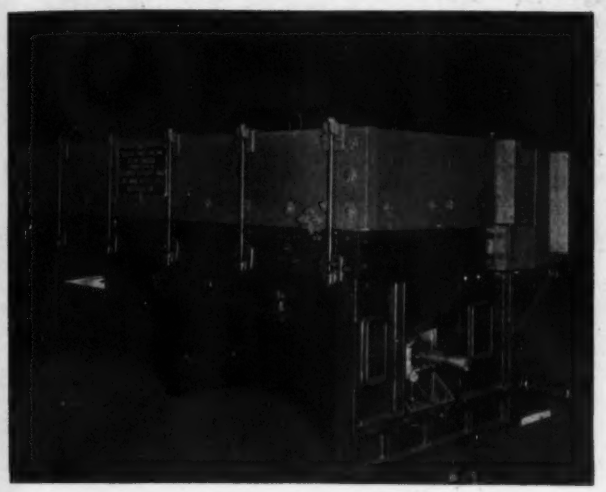
New Rags

New Dark Cuttings	2.25	@	2.4
New Mixed Cuttings	2.00	"	2.2
New Light Silesias	5.50	"	5.7
Light Flannelettes	5.50	"	5.7
New White Cuttings	7.00	"	7.5
New Light Oxford	4.00	"	4.5
New Light Prints	3.00	"	3.2

Old Rags

No. 1 White Linens	7.50	"	8.5
No. 2 White Linens	6.50	"	7.3
No. 3 White Linens	4.50	"	—

Nekoosa Flat Screen
— connecting rod type —



1. Positive Action

2. Noiseless—No Vibration

3. Maintenance Negligible

4. Splash Lubrication

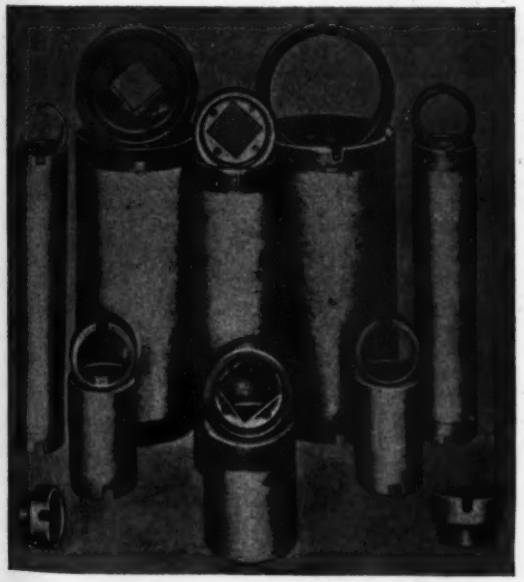
5. Customer Claims

30% More Capacity

Write us for complete details

Nekoosa Foundry & Machine Works, Inc.

NEKOOSA, WIS., U. S. A.



ELIXMAN

C A P S — **C O R E S**

Straight wound paper cores made in sizes from 2" to 10" inside diameter with any thickness wall required.

Long draw protected slot caps of heavy gauge steel in all standard sizes.

Heavy duty caps with reenforced square hole. This new patented feature of reenforcement gives added strength and durability.

Samples of caps or cores will be gladly submitted.

ELIXMAN PAPER CORE COMPANY, INC.

CORINTH, N. Y.

No. 4 White Linens.	2.25	@	3.25
No. 1 White Cotton.	4.25	"	4.75
No. 2 White Cotton.	3.25	"	3.75
No. 3 White Cotton.	2.50	"	3.00
No. 4 White Cotton.	1.90	"	2.20
Extra Light Prints..	2.00	"	2.40
Ord. Light Prints...	1.75	"	2.15
Med. Light Prints...	1.55	"	1.95
Dutch Blue Cottons.	2.25	"	2.50
French Blue Linens..	3.00	"	—
Checks and Blues...	2.00	"	—
Linsey Garments....	1.90	"	2.00
Dark Cottons.....	1.50	"	1.60
Old Shopperies.....	1.30	"	1.45
New Shopperies.....	1.45	"	1.50
French Blues.....	2.25	"	2.50

Old Rope and Bagging

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	2.75	@	3.00
Domestic	2.50	"	2.75
Wool Tares, light...	2.00	"	2.25
Wool Tares, heavy..	2.12½	"	2.25
Bright Bagging.....	2.25	"	2.50
Manila Rope—			
Foreign	4.25	"	4.50
Domestic	3.75	"	4.00
Jute Threads.....	2.62½	"	2.75
Sisal Strings.....	2.10	"	2.35
Mixed Strings.....	1.10	"	1.20

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	3.10	@	3.25
Ordinary Hard White No. 1....	2.25	@	2.50
Soft White No. 1...	1.80	"	1.90
Soft White Extra..	2.50	"	2.60
Flat Stock—			
Stitchless	1.10	"	1.25
Overissue Mag....	1.00	"	1.10
Solid Flat Book...	1.05	"	1.10
Crumbled No. 1...	.70	"	.75
Ledger White Stock.	1.70	"	1.80
Ledger Stock Colored	1.05	"	1.15
Manila—			
New Env. Cut....	1.70	"	1.80
New Cuttings.....	1.30	"	1.40
Old Kraft Machine..	—	"	—
Compressed bales..	1.50	"	1.75
News—			
No. 1 White News	1.75	"	1.90
Strictly Overissue.	.70	"	.75
Strictly Folded....	.55	"	.60
Corrugated	.55	"	.60
No. 1 Mixed Paper..	.40	"	.45

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.18½	@	—
White Hemp.....	.18½	"	—
Fine Polished—			
Fine India.....	.23	"	—
Unpolished—			
Box	.14¾	"	—
Paper Makers.....	.15	"	—
Tube Rope.....	.16¼	"	—
Wall Paper.....	.15¾	"	—
Wrapping	.18	"	—
Soft Fiber Rope...	.16¼	"	—
Cotton	.21	"	—
(Hard Fiber)			
Medium Java.....	.19	"	—
Mex. Sisal.....	.16	"	—
Manila	.24	"	—

Domestic	2.50	"	2.75
Sisal Rope.....	2.20	"	2.50
Mixed Rope.....	.85	"	1.00
Transmission Rope—			
Foreign	3.50	@	—
Soft Jute Rope.....	3.00	"	3.25
Manila Rope—			
Foreign	4.25	"	4.50
Jute Carpet Threads.	1.50	"	1.75
Gunny Bagging—			
Foreign	2.75	"	2.85
Domestic	2.50	"	3.00
Bleachery Burlap....	3.50	"	3.75
Scrap Burlap—			
Foreign	2.60	"	2.65
Domestic	2.50	"	—
Scrap Sisal.....	2.25	"	2.50
Scrap Sisal for Shredding	2.30	"	2.65
Wool Tares, Heavy..	2.50	"	2.65
New Burlap Cuttings	3.25	"	3.50
Aust. Wool Pouches.	3.00	"	3.25
Heavy baling bagging	2.60	"	2.90
Paper Mill Bagging..	1.75	"	2.00
No. 2 Bagging.....	.75	"	.80

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints.	—	@	.03
Fancy Percales....	.04	"	.04¼
New White No. 1.	—	"	.07½
New Light Flannelettes	.05	"	.05¼
Silesias No. 1	.05	"	—
New Black Silesias..	3.20	"	3.25
Soft Unbleached...	.07	"	.07½
Blue Cheviots.....	.05	"	.05½
Fancy	.02	"	.02½
Washable	.02	"	.02½
Cottons—According to Grades—			
Blue Overalls.....	.04¼	"	.05
New Black, Soft..	.03	"	.03¼
Khaki Cuttings.....	.03	"	—
O. D. Khaki.....	.03	"	.03½
Corduroy	.02¾	"	.03
New Canvas.....	.06¼	"	.07¼
B. V. D. Cuttings...	.07	"	.07½

Domestic Rags (Old)

(F. o.b. Boston)

White No. 1—			
Repacked	—	"	2.75
Miscellaneous	2.00	"	2.50
White No. 2—			
Repacked	1.90	"	2.00
Miscellaneous	2.00	"	2.25
Twos and Blues.....	1.50	"	2.00
Old Blue Overalls ..	1.60	"	2.00
Thirds and Blues—			
Repacked	—	"	1.25
Miscellaneous	—	"	1.00
Black Stockings.....	3.50	"	4.00
Roofing Stock—			
No. 1.....	1.00	"	1.25
No. 2.....	—	"	1.10
No. 3.....	—	"	.90

Foreign Rags

(F. o. b. Boston)

Canvas	.04¼	@	—
Dark Cottons.....	(nominal)		
Dutch Blues.....	(nominal)		
New Checks and Blues	(nominal)		
Old Fustians.....	(nominal)		
Old Linsey Garments.	(nominal)		
New Silesias.....	(nominal)		

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f.o.b. Phila.)

Shirt Cuttings—			
New White No. 1.	.07¼	@	.07½
New White No. 2.	.04	"	.04½
Light Silesias.....	—	"	.04½
Silesias, No. 1....	—	"	.04½
Black Silesias, soft	—	"	.03¾
New Unbleached..	.05½	"	.06
Washable, No. 1..	—	"	.04
Blue Overall.....	.04½	"	.05
Cottons—According to grades—			
Washable No. 2....	—	"	.01¾
New Blue	—	"	.01¾
Fancy Percales....	—	"	.03
New Black Soft...	—	"	.04
New Light Seconds	.04½	"	.05
New Dark Seconds	—	"	1.55
Khaki Cuttings—			
No. 1 O. D.....	.03¼	"	.03½
No. 2 Mixed.....	.02½	"	.02¾
Corduroy	—	"	.03
New Canvas.....	.05½	"	.06
New Black Mixed.	—	"	.03

Domestic Rags (Old)

White No. 1—			
Repacked	3.25	@	3.75
Miscellaneous	2.50	"	2.75
Thirds and Blues—			
Miscellaneous	1.50	"	1.55
Repacked	1.75	"	2.00
Black Stockings (Export)	3.50	"	4.00
Roofing Stock—			
Foreign No. 1....Nominal			
Domestic No. 1...	—	"	.90
Domestic No. 2...	—	"	.80
Roofing Bagging..	—	"	.70

Bagging

(f.o.b. Phila.)

Gunny, No. 1—			
Foreign .....Nominal			
Domestic	2.25	@	2.75
Manila Rope.....	—	"	4.50
Sisal Rope.....	1.75	"	2.00
Mixed Rope.....	1.00	"	1.25
Scrap—			
No. 1.....	2.50	"	2.75
No. 2.....	1.10	"	1.15
Wool Tares, heavy..	3.50	"	3.70
Mixed Strings	.75	"	1.00
No. 1 New Light Burlap	3.00	"	3.50
New Burlap Cuttings	2.00	"	2.25

Old Papers

(f.o.b. Phila.)

Shavings—			
No. 1 Hard White	2.30	@	2.40
No. 2 Hard White	2.10	"	2.15
No. 1 Soft White	1.85	"	1.90
No. 2 Soft White	1.50	"	1.60
No. 1 Mixed.....	.90	"	1.00
Solid Ledger Stock..	1.50	"	1.60
Ledger Stock, white.	1.65	"	1.70
Ledger Stock, colored	1.10	"	1.20
No. 1 Books, heavy..	.85	"	.90
Manila Cuttings.....	1.75	"	1.80
Print Manila.....	.50	"	.55
Container Manila....	.40	"	.45
Kraft Paper.....	1.30	"	1.40
No. 1 Mixed Paper..	.40	"	.45
Straw Board Chip...	—	"	.40
Binders Board Chip..	.40	"	—
Corrugated Board...	.60	"	.65
Overissue News.....	.75	"	.80
Old Newspapers.....	.55	"	.60

BOSTON

Old Papers

(f.o.b. Boston)

Shavings—			
No. 1 Hard White	2.25	@	2.50
No. 1 Soft White	1.85	"	2.15
No. 2 Mixed.....	.75	"	.80
Solid Ledger Books..	1.30	"	—
Overissue Ledger Stock	1.30	"	1.50
Mixed Ledgers.....	.85	"	.90
No. 1 Books, heavy..	1.00	"	1.10
No. 1 Books, light..	.65	"	.75
Crumpled Stitchless Book Stock.....	.55	"	.65
Manila Env. Cuttings	1.70	"	1.85
Manila Envelope Cuttings, extra quality	2.35	"	2.60
White Blank News..	1.40	@	1.50
No. 1 Kraft.....	1.25	"	1.30
Extra No. 1 Kraft...	1.60	"	1.75
Mixed Papers.....	.22½	"	.25
Print Manila.....	.50	"	.55
Container Manila....	.60	"	.70
Old Newspapers.....	.45	"	.50
Paper Wool Strings..	.90	"	1.00
Overissue News.....	1.00	"	1.10
Box Board Chips....	.35	"	.40
Corrugated Boxes...	.45	"	.50
Kraft corrugated boxes	1.00	"	1.20
New Kraft Cuttings.	1.75	"	2.00
Screening Wrappers	.60	"	.70

Bagging

(f.o.b. Boston)

Gunny Bagging—			
Foreign	2.75	"	2.85

CHICAGO

Waste Paper

(f.o.b. Chicago)

Shavings—			
No. 1 White Envelope cuttings..	2.40	@	—
No. 1 Hard White	2.15	"	2.20
No. 1 Soft White.	1.85	"	1.95
Ledger and Writings	.85	"	.95
Solid Books.....	.95	"	1.05
Blanks	1.50	"	1.65
Kraft	1.15	"	1.35
New Kraft Cuts.....	1.40	"	1.50
Overissue News.....	.80	"	1.00
Old Newspapers—			
No. 1 Folded News	.65	"	.75
No. 1 Mixed Paper	.35	"	.55
Roofing Stocks—			
No. 1.....	.95	@	1.00
No. 2.....	.85	"	.90

PULP SITUATION BECOMES ACUTE

(Continued from page 7)

of kraft paper that we use very extensively in the production of gummed tape, the majority of our requirements in this respect coming from Sweden. I am wondering, therefore, whether you would be good enough to help us by placing in those directions in America a general enquiry on our behalf for this class of material, i. e., kraft paper for converting into gummed tape.

"The substances we are at present using are:—20 x 20, 480's. 19 and 24 lbs. for parcelling tapes. 30 and 75 lbs. for container tapes. 63 and 70 lbs. for the stay paper.

"As far as quantity is concerned, any direction that can help us should state just what their requirements are in this direction as I have no doubt we shall be able to meet same, and I enclose specimens of same upon which each sample contains full details. Our gumming machine width is a maximum of 60 inches but as far as the substances are concerned, we shall, of course, be pleased to conform to the nearest upon which any particular mill may be specializing.

"We are, as you can imagine, having many problems to meet from day to day and it is very difficult to foresee any considerable time ahead. At the same time, no material dislocation has so far taken place and it has been possible to conform to the various restrictions so far imposed without any serious inconvenience, but I am sure you can well imagine that everything is far from being straight-forward.